Virginia Medical Monthly

Vol. 80, No. 2
WHOLE No. 1208

RICHMOND, VA., FEBRUARY, 1953.

$2.00 A YEAR
25 CENTS A COPY

GUEST EDITORIAL

Cooperation

COOPERATION plus effort is the key to success. Cooperation of individuals may be likened to the working of delicate and complicated machinery, as a watch, engines of all types, or rapidly firing guns. Each part is built and adjusted to work together to produce a desired result. Improperly adjusted, all parts not working together, would result in discord and confusion. Suppose, for instance, people could and would work together harmoniously, as a watch clicking and ticking off the time of day; then the whole world would be changed and would be a wonderful place in which to live.

The President of your state society has outlined and planned a program for the coming year. The full cooperation of each member of the Council and members of all appointed committees is essential for the success of this program. He cannot do it alone—it requires teamwork. So it is with any organization, business or corporation; if those in charge do not get full cooperation of all those under him, a complete success cannot be obtained.

There was a time when the physician was considered the leader in every community: in religion, in education, in government, and in the profession. But he is rapidly losing that leadership. He is still the best educated and best trained man in the community. He is not losing his leadership because many others also are well educated. He is losing his leadership because he is not cooperating to the fullest extent with his professional brethren, and with other members of the community to promote a better and fuller society. I am afraid we are thinking too much about self interests rather than the interests of our common fellow man. Any person who enters a profession primarily for self-interest and monetary gain has missed his calling. He should travel the road alone. If each physician lived and worked according to the professional standards, taught by our forefathers, there would be no need for emergency lists, no appeals in the local press for a doctor. There are enough to go around. No, I am afraid we are looking for too easy a seat. Too many wish to be specialists and get to the top of the ladder too quickly. We are not willing to cooperate.

We should cooperate with the health officer of our community by reporting contagious diseases promptly in order that precautions might be taken to avoid the spread of further contagion. I recently visited a community where a mild form of infectious hepatitis has been going on since early Spring. The physician with whom I talked estimated there had been around a hundred and fifty cases in that town and surrounding territory. I was told not a single case had been reported to the state board of health. The physicians in charge did not think the patients sick enough to report This was

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lack of cooperation with those in authority. I was afraid to draw blood in that community, not knowing who had and who had not been exposed.

If you live in a community which cooperates with the Red Cross Blood Program, give them your most hearty support. The free availability of blood contributes much to the physician in helping him to practice better scientific medicine. It means much to those who are sick and injured to be able to get quickly the proper amount and type of blood.

Cooperation is the key to success no matter what the undertaking. Cooperation should not necessarily destroy difference of opinion. Difference of opinion is often the spice of life and should lead to more unanimity of effort and success.

Yes, the medical profession should learn to work together for the betterment of the community and mankind and not only for self intere t. Then and only then may we expect to become leaders in society.

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EDITOR'S NOTE: Dr. Harrell of Norfolk is a former president of The Medical Society of Virginia and is now connected with the American Red Cross as Director of its Blood Center for the Tidewater Area.

PHYSICIANS CAN SELL AMERICANISM

PROMOTING a better understanding of the American system and its reasons for success is a sound way to combat socialization attempts. One Muncie, Indiana physician has outlined a plan telling how individual doctors can plug the American system.

Dr. Lall G. Montgomery calls his plan of action "The Physician Sells Americanism." He claims that his plan is an assembly of ideas now being put into practice by physicians in his area. His plan, combining public education and public relations, includes:

1. Making the doctor's waiting-room a "School for Americanism" with pamphlets, clippings and cartoons available for reading and on display.
2. Spending an extra minute talking with each patient and giving each patient something to take home—a pamphlet or a card with an Americanism slogan.
3. Joining one or more organizations which are working for a better understanding of Americanism.

Some state and county medical societies may wish to help their physician-members promote the American way of life by making pertinent literature available for distribution. It is vital, however, that such literature be very carefully selected—so that a well-meant PR project does not backfire.

THE PR DOCTOR
June 6, 1952

TREATMENT OF LEUKEMIA AND LYMPHOMA*

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In recent years several new agents have been developed and employed in the treatment of malignant diseases of the blood-forming organs.[1,2,3,4,5,6] Though these newer forms of treatment are encouraging and represent a definite advancement in this field, they are not the final answer, since they also exert an effect on normal tissues and as yet are not specifically localized to neoplastic cells. The latter effect is one aim of present cancer research. In this paper we will summarize these advances and indicate how they fit into present day management of leukemia and lymphoma.

In Table I those diseases which have a somewhat similar course, treatment, prognosis, etc., are grouped together. In Table II we have classified these conditions primarily on the basis of the cell type involved in an attempt to relate the solid tumor or lymphoma types to those manifested primarily by bone marrow and blood stream invasion, the leukemias. In Table III we have outlined the modes of therapy now in use.

TABLE I

Neoplastic Diseases of the Reticulo-endothelial System

I. Leukemia:		
1. Acute	Granulocytic	(Myeloblastic)
	Lymphocytic	(Lymphoblastic)
	Monocytic	(Monoblastic)
2. Chronic	Granulocytic	(Myelogenous)
	Lymphocytic	(Lymphatic)
II. Lymphoma:		
1. Giant Follicle Lymphoma		
2. Reticulum Cell Sarcoma		
3. Lympho-sarcoma		
4. Hodgkin's Disease:	Paragranuloma	
	Granuloma	
	Sarcoma	

TABLE II

Neoplasia of the Reticulo-endothelial System

Cell Origin	Local Tumor Growth	Blood Stream	Dissemination
Granulocytic	Chloroma	Leukemia	Acute Chronic
Lymphocytic	Lympho-sarcoma	Leukemia	Acute Chronic
Plasmacytic	Plasmacytoma	Multiple Myeloma	
Monocytic	Reticulum Cell Sarcoma	Leukemia	Acute Chronic
? Hodgkin's Disease			

TABLE III

Therapeutic Measures in Leukemia and Lymphoma

I. Irradiation:
1. X-ray
2. Radioactive isotopes (P^{32})

II. Chemotherapy:
1. Fowler's solution
2. Urethane
3. Folic acid antagonists (Aminopterin: A-methopterin)
4. Nitrogen mustard (H N 2)

III. Hormones:
1. ACTH
2. Cortisone

IV. Supportive:
1. Transfusions
2. Antibiotics

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*Read before the annual meeting of the Medical Society of Virginia at Virginia Beach, Virginia, October, 1951.

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IRRADIATION

X-ray: X-ray remains the most available and often the most effective form of therapy. Therapy is usually given to local tumor masses in doses of 100 to 300 r for a total of 1000 to 3000 r. Local irradiation to the spleen in doses of 600 to 1500 r is indicated when splenomegaly is prominent. Whole body or spray irradiation with a total series dose of 50 to 100 r is occasionally used and gives considerable body ionization.

Radioactive Isotopes: Radioactive phosphorus P^{32} is the most effective one of these agents in use at present. P^{32} accomplishes its effect through two mechanisms:

1. Phosphorus metabolism is one and one-half to two times as great in tumor as in normal tissue.

2. Much of the P^{32} retained in the body is eventually deposited in cancellous bone where it may deliver radiation to the bone marrow.

The technique of P^{32} therapy must be individualized and the amount required to induce a remission initially in chronic leukemia is five to fifteen millicuries given orally or by vein, preferably the latter. Dose is determined by the leukocyte count and the other clinical features. Excessive dosage will result in extensive bone marrow damage and pancytopenia. P^{32} is provided by the Atomic Energy Commission to approved institutions.

CHEMOTHERAPY

Fowler's Solution: This agent has been used in the treatment of leukemia since 1865 and continues to be an acceptable method of treatment. The active agent in this preparation is 1 per cent arsenic trioxide, though its mechanism of action is unknown. Initial dosage should be 4 to 5 minims three times daily, gradually increasing to an effective dosage which in some cases may be as much as 40 minims daily. It should be given immediately after meals, well diluted. Nausea, diarrhea, herpes, keratosis, cirrhosis and polyneuritis are the toxic effects one may encounter.

Urethane: This chemical is a general cytoplasmic poison which inhibits neoplastic tissue growth but may also produce bone marrow aplasia and toxic hepatitis. Unfortunately the production of anorexia, nausea, vomiting, and diarrhea in many patients limits its use. Dosage ranges from 2 to 6 grams daily in enteric-coated capsules. The leukocyte count should act as a guide to dosage and duration of the therapy. It may also be given intramuscularly or intravenously.

Folic Acid Antagonists: Several substances differing only slightly in chemical structure from folic acid have been developed which interfere with the normal cellular metabolism of the hematopoietic and gastro-intestinal systems. Folic acid is apparently converted to a substance "citrovorum factor" which is probably essential for purine metabolism. These chemical antagonists interfere either with this factor or folic acid itself. Aminopterin and A-methopterin are the drugs that have been most widely used. Aminopterin is given intramuscularly in doses of 0.5 to 2.5 mg. per day until remission is achieved; then maintenance therapy may be used or therapy stopped until relapse occurs. The margin between successful depression of leukemic proliferation and toxic dosage with fatal hemorrhage and oral or gastro-intestinal tract ulceration is very narrow and these drugs are still restricted to institutional and investigative use. The toxic effects may be blocked with folic acid or "citrovorum factor" but the antileukemic effect is also obviated.

Nitrogen Mustard: This agent is an outgrowth of the mustard gas used in World War I and is now widely accepted as a valuable adjunct to the therapy of Hodgkin's disease. Methyl-bis (Beta-chlorethyl) amine hydrochloride (HN2) is the most satisfactory of several forms investigated and is now available commercially. Upon going into solution and being injected, it combines with body tissue, to inactivate certain enzyme systems and produce cellular death.

The technique of administration is as follows:

(1.) An infusion should be running freely in the vein; (2.) 0.2 mg. of HN2 per kilogram of the patient's body weight is dissolved in saline and injected into the tubing of the infusion immediately, since the effect of the drug is dissipated within five minutes. This dosage may be repeated the next evening, since the usual course is 0.4 mg./kilo. There is usually transient nausea, vomiting, and diarrhea. Bone marrow depression occurs between the seventh and the fourteenth days but is seldom serious unless there was preexisting depression of the marrow, in which case the 0.4 mg. dosage should probably not be used. In the skin it will produce necrosis.

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Tricthylene Melamine (TEM): This substance resembles nitrogen mustard chemically and in its action on neoplastic tissue. It has the advantage of being an oral preparation with very slight gastro-intestinal disturbance, but is more dangerous because bone marrow depression is more profound and more prolonged. Dosage, therefore, has to be very carefully controlled. We give 5 to 10 mg., wait a week, and check the leukocyte and platelet count, particularly before giving the next week's dosage. Moderate therapy may be conducted over prolonged periods with the dosage adjusted according to the patient's tolerance as determined by blood count.

HORMONES

ACTH and Cortisone: Among the many amazing effects of these hormones, their effect in acute leukemia may be as striking as any. Their mechanism of action is unknown, but it does not appear to be through general tissue toxicity or destruction. Thus, if one obtains a response with these hormones, instead of suffering bone marrow depression and toxicity to the gastro-intestinal tract, the patient usually shows a reticulocytosis with correction of anemia, return of leukocytes and platelets toward normal, and a general improvement in appetite, weight and morale.

ACTH is given 25 mg. every six hours intramuscularly; or may be given intravenously over an eight hour period of each day in a dose of 10 to 20 mg., the latter method being more economical. 100 to 200 mg. of cortisone per 24 hours either intramuscularly or by mouth in divided dosage may be employed and for maintenance therapy 50 mg. per day orally may be adequate. Therapy with these hormones should be given until a good remission is obtained and one should probably treat the patient at least two weeks before stopping the drug because of apparent lack of response. If eosinophile counts and clinical features indicate no adrenal response to ACTH, cortisone should be tried. The chief toxic effects are salt and water retention, blood pressure elevation, and mental disturbances. They are hazardous to use in the presence of tuberculosis, peptic ulcer, cardiovascular disease and known emotional instability. A low sodium diet is important and supplementary potassium chloride 6 to 8 grams per day may be given orally.

SUPPORTIVE

A discussion of the management of these diseases is not complete without mention of general and supportive measures. Transfusions should be used freely to control anemia since the usual hematinics are of no value. Splenectomy is indicated in the occasional patient who has a marked acquired hemolytic anemia in association with some type of lymphoma or chronic lymphocytic leukemia. Antibiotics have aided considerably in the control of infections. Protamine and toluidine blue have been disappointing in controlling the hemorrhagic manifestations. The psychological management of patients with these disorders is extremely important, since the outcome is inevitably fatal but the *time* of the outcome quite variable and most difficult to predict when the patient is first seen.

We have attempted to summarize the more pertinent facts about the newer therapeutic agents available for the treatment of leukemia and lymphoma. The role that these agents play in the practical management of such patients is becoming fairly well defined now and in the ensuing paragraphs and Table IV we will outline the management of these specific conditions.

TABLE IV
Summary of Methods of Choice in Treatment of Leukemia and Lymphoma

I. Acute Leukemia:
1. ACTH and Cortisone
2. Folic acid antagonists, in children only.
II. Chronic Leukemia:
1. Irradiation (X-ray and P^{32}) principal form of therapy.
2. Urethane, T E M, Cortisone and Fowler's adjunctive measures, in properly selected patients.
III. Myeloma:
ACTH, Cortisone and Urethane sometimes of value.
IV. Lymphosarcoma, reticulum cell sarcoma and Giant Follicle Lymphoma:
1. X-ray most effective.
2. H N 2 and T E M, ACTH and Cortisone occassionally helpful.
V. Hodgkin's Disease:
1. X-ray most effective.
2. H N 2 and T E M also effective as supplementary therapy.
3. ACTH and Cortisone occasionally helpful.

Acute Leukemia: Therapy of this condition involves a certain amount of philosophical considera-

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tion. Life is often prolonged several months and made more comfortable with therapy. ACTH and cortisone are certainly the agents of choice and remissions though usually brief, may be expected in over half the patients treated. In children, aminopterin and A-Methopterin may be used and over 50% will go into a remission of one to over 24 months in a few isolated cases. The toxic manifestations are often severe, however, and careful watch must be kept for them.

Chronic Leukemia: We induce the initial remission in these patients with P^{32} or x-ray. If their platelets are not especially low and the marrow is cellular, P^{32} is a quick, simple, inexpensive way of treating such patients. The patient is spared a long period of X-ray therapy with its attendant reaction, unpleasant effects, and greater economic factor. On the other hand, X-ray to large nodes or a markedly enlarged spleen may be preferable and of course more generally available. One may get long remissions after such courses of therapy or one may choose to try and keep the disease under control without relapsing periods by giving small doses of P^{32} as the leukocyte count begins to get to the 100,000 level; or by giving Urethane, TEM, or occasionally Fowler's over a long period. Some cases of chronic lymphocytic leukemia in older persons are quite benign and require little or no treatment for long periods. In chronic granulocyte leukemia the prognosis is usually one to five years.

Multiple Myeloma: In the more malignant forms of this disease characterized by heavy marrow infiltration with very early myeloma cells, we prefer ACTH or cortisone. In those forms showing more mature plasma cells, good results are often achieved with Urethane. All therapy is often disappointing.

Lymphosarcoma, Reticulum Cell Sarcoma, and Giant Follicle Lymphoma: These conditions are all best treated by X-ray. When they become refractory, some of these patients will be definitely benefited by HN_2, TEM, ACTH, or cortisone. The rare cases of local bowel involvement deserve radical surgery of course.

Hodgkin's Disease: Our plan of treatment for patients with this condition is to give them a course of nitrogen mustard or use X-ray to local areas such as spleen, peripheralynodes, mediastinum, etc., as indicated at the time of initial diagnosis. Subsequently, for constitutional symptoms such as fever, sweats, and pruritus we use HN_2. As definite masses, or splenomegaly recur we use X-ray to these areas, often in combination with HN_2 again. As the patient seems to become refractory to these measures, TEM may be used and rarely ACTH or cortisone. In patients who have only cervical adenopathy when first diagnosed, radical neck dissection may be attempted followed by HN_2 and X-ray. This is particularly worthwhile if the histological diagnosis on the biopsy is paragranuloma.

SUMMARY

With the development of newer agents to supplement X-ray, there has been definite improvement in the overall therapy of leukemia and lymphoma. The prognosis in patients with chronic leukemia or one of the lymphomas ranges from a few months to 15 or 20 years and so one must not adopt a fatalistic attitude toward these conditions but treat them energetically and expectantly. Lengthy remissions and prolongation of useful life will often be the result. It is necessary that in all of these conditions general supportive therapy be maintained and antibiotics and transfusions still are important adjuncts to therapy.

Radical surgical excision should be carried out if the disease is thought to be localized and is accessible since surgery alone offers the only hope for a permanent cure. The psychological management of patients with these diseases is quite important.

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EXPERIENCES WITH THE FEMORAL HEAD PROSTHESIS IN RECONSTRUCTIVE SURGERY OF THE HIP*

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We are presenting our experiences with a new method of treatment of ununited fractures of the neck of the femur and severe arthritis of the hip. For non-union of femoral neck fractures, a wide variety of procedures has been used, ranging from bone grafting through many varieties of osteotomies, to reconstruction procedures such as the Whitman, Brackett, or Colonna, and even to arthrodesis of the hip. The variety of procedures itself indicates that the results are not uniformly successful. Furthermore, the post-operative care usually requires prolonged immobilization which is not desirable in the elderly patients who have the vast majority of these fractures.

In the case of arthritic hips with ankylosis or severe pain, vitallium cup arthroplasty after the manner of Smith-Petersen has been successful in the hands of Smith-Petersen but many others have been disappointed in their results. Furthermore, the operation, to be well done, is prolonged and tedious, and therefore unsuitable for the patient who is only a fair risk.

The first experimental work on a femoral head prosthesis was done by Bohlman in 1929. In 1940, Bohlman and Moore inserted a vitallium prosthesis for a giant cell tumor and shortly after that, Hudack and McBride did similar work. Judet and Judet in France have reported on over 400 cases since 1946, done for fractures, arthritis, and even congenital dislocation of the hip. At present many orthopædists are designing some modification of a prosthesis. The materials used range from vitallium and stainless steel to acrylic plastic and nylon.

TYPES OF CASES TREATED

This is a report on 12 hips operated upon in 12 patients. Two hips were operated on a second time making 14 operations. There were 7 cases of fracture of the femoral neck and there were 5 cases of chronic arthritis. Of these latter, two were osteoarthritis, one was a rheumatoid arthritis, and two appeared to be arthritis following slipped upper femoral epiphysis and avascular necrosis. The two osteoarthritis cases had motion but severe pain, making walking difficult. The rheumatoid arthritis case had bilateral bony ankylosis, the fourth case had fibrous ankylosis plus pain, and the last had some motion but severe pain. The ages ranged from 16 to 68. There were three females and two males. Of the 7 cases with fractures, all were females, ages 53 to 74. The interval following the original fracture varied from 6 weeks to 11 months. One case never had any treatment for her 8 months old fracture, and 6 had Smith-Petersen nail fixation which was unsuccessful because of non-union, avascular necrosis, or just extrusion of the nail with displacement of the fracture.

THE PROSTHESIS

Five different types of prosthesis have been used. All were metal, either stainless steel or vitallium. Two types were three piece with a head, stem, and plate to be fixed to the shaft with screws. These were the Jaenichen-Collison (fig. 1) which was used three times, and the Lorenzo prosthesis (fig. 2) which was used one time. Both of these are stainless steel. Three types were one piece. One of the modified Judet prosthesis (fig. 3), has a hemispherical head with attached triflanged stem having the appearance of a Smith-Petersen nail which is driven in retrograde manner down the femoral neck and through the lateral cortex of the shaft. This was used three times. Another, the Fred Thompson prosthesis (fig. 4), has a head which is fully rounded, a neck section, and a stem which is smooth and curved and is driven down the medullary canal. This was used five times but had to be removed and replaced by another type in two cases which will be discussed in more detail later. These latter two types were both of vitallium. The third one piece type was the Eicher prosthesis (fig. 5) which also has a fully rounded head and a neck section but the intramedullary stem is heavier and flanged to prevent rotation in the

*This paper presents essentially the same material shown in the exhibit offered by the authors at the annual meeting of The Medical Society of Virginia at Virginia Beach on October 7-10, 1951.

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Fig. 1.—Lorenzo three piece prosthesis.

medullary canal. This type is stainless steel. It was used one time (in our last case).

THE OPERATION

The operation varied with the type of prosthesis. The first two types required (1) exposure of both hip joint and outer surface of the femoral shaft and (2) a number of special instruments. The latter three types required only exposure of the hip joint (except for a very short incision for removal of the Smith-Petersen nail, if present) and the operation could be done without special instruments. The operation was at least twice as long with the three piece types as with the one piece. The joints were exposed in 2 cases through an antero-lateral incision but the other 10 were done through the Smith-Petersen approach. In all cases the femoral head was removed, the stump of the neck was made smooth, the femur was brought into external rotation to receive the new head, and a proper size head was selected and attached to the femur in the manner indicated for the type of prosthesis. The dislocation then present was reduced and the joint capsule and all layers of the wound were sutured. In no case was the acetabulum reamed, although reaming was considered in one case. An associated adductor tenotomy was done in one case. In 5 cases a plaster boot with a cross bar was applied to maintain the leg in internal rotation.

In regard to post-operative care, these patients were kept in bed with external rotation prevented for 9 to 10 days. Then a rope and pulley were fixed from an overhead frame with a sling to allow exercises of abduction and some flexion. They were allowed up in a chair at about 2 weeks, and began walking with a walker or crutches at 2 to 3 weeks.

There were three significant complications. Two resulted in failure, necessitating a second operation. In one case a longitudinal fracture of the neck occurred in dividing it. Although this was fixed with screws, post-operative X-rays showed that the stem of the prosthesis passed out through the fracture line instead of remaining in the medullary canal and the head was too large to fit completely within the acetabulum. In another case, dislocation occurred 4 weeks post-operatively. Both these complications occurred with the Fred Thompson intramedullary stem type of prosthesis which had to be removed and replaced by the Jaenichen-Collison three piece type. A third complication was a fracture of

Fig. 2.—Jaenichen-Collison three piece prosthesis.

the femoral neck without displacement while driving this same type prosthesis home. This delayed partial weight bearing for 4 weeks and full weight bearing until 8 weeks post-operative. There was also one hematoma in the wound which drained for about 5 weeks. There were no infections.

RESULTS

Of the 12 patients, 11 are ambulatory. One of the arthritic cases is reported to be confined to bed and unable to return for follow-up examination.

The 7 fracture cases have been followed 2 to 12 months. The one which dislocated is being kept on one cane and one crutch at 6 months post-operative. The most recent case uses one crutch. The other 5 are able to walk a short distance without cane or crutch, but one was using a walker and two used a cane or crutch most of the time. One used a cane or crutch part of the time. Only one usually walked without any support. Three had a mild abductor type of limp. One had no pain, and six had mild pain. In only one did pain occasionally interfere with sleep. Three had good motion and four had fair motion.

Of the four arthritis cases able to come for examination, excluding one failure confined to bed, one used one crutch and three used two crutches. Two had good motion and two poor. All four cases had only mild or occasional pain.

Fig. 3.—Modified Judet type one piece prosthesis.

Fig. 4.—Fred Thompson intramedullary stem type prosthesis.

DISCUSSION

It is realized that the period of follow-up for these cases is very short and the long term results are unknown. The total number of cases is not large and the number of cases of each type of prosthesis is even smaller. Although we are not able to draw any definite conclusions, there are certain impressions which we have received so far. The procedure appears to be especially useful in the elderly hip fracture unsuccessfully treated with Smith-Petersen nail fixation. It appears to leave less residual pain than most of the older procedures. In arthritic hips, it is a much easier procedure than cup arthroplasty. It appears to result in less pain, but we have not been impressed with the range of motion.

In regard to the choice of prothesis, we have had no experience with the plastic or nylon types whose principal advantage is apparently a certain amount of resilience and whose disadvantages are invisibility in X-rays, and unsuitability for heat sterilization. The one piece type appears to be by far the most technically simple to insert and therefore appears

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Fig. 5.—Eicher intramedullary stem type prosthesis.

more suitable for the elderly patient. The vitallium prostheses also have the advantage of being light because of the hollow construction of the head. The modified Judet type is the least expensive of all five, being less than half the cost of some of the others. This one is especially suitable for the case in which adequate length of neck is preserved. A prosthesis with a neck section, such as one of the intramedullary stem types, is preferred for the many fracture cases in which most or all the neck has been absorbed. However, one of these, the Fred Thompson type, appears to have a tendency to rotate in the medullary canal, especially when the head is forced back into the acetabulum at the close of the operation. The three piece type with plate and screws is difficult to insert, is expensive, and appears to have no advantage in the average case. It may have a use where, for some reason, the one piece types cannot be used, as for instance where the cortex of the neck or shaft has been badly fractured during the process of removing an arthritic head. It is well to have two or three different head sizes sterile and ready to use at each operation.

In regard to the complications encountered, it is felt that many of these can be avoided by proper selection of prosthesis and more understanding of the problem.

SUMMARY

This has been a report on 12 cases in which a femoral head prosthesis has been used as a new method of reconstructive surgery of the hip. Seven cases were for old femoral neck fractures, and five were for arthritis of several types. Five different types of metal prosthesis were used. Although the long term results are as yet unknown, it is felt that the method shows promise of being a valuable advance in the treatment of ununited femoral neck fractures and of certain types of arthritis of the hip. The one piece type of prosthesis, either the modified Judet or the intramedullary stem type, appears to be preferable to the three piece type. A characteristic of the 11 cases which could be followed was the uniformly minimal degree of pain.

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THE TETRALOGY OF FALLOT—
Diagnosis and Surgical Treatment

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Five patients with the Tetralogy of Fallot treated by shunt operations comprise the basis for this report. These patients have been studied in the Congenital Heart Clinic of the Outpatient Department of the Medical College of Virginia. The clinical features and diagnostic aids which permit the differentiation of this condition from other types of cyanotic congenital heart disease are discussed. These five cases illustrate the gratifying palliation which may be expected from surgical treatment.

HISTORICAL

Sandifort in 1777 described a boy who had been "livid since he was a year old." This case is cited by Peacock[1] as one of the first reports on this type of congenital heart lesion. Peacock in his book published in 1866, reported 18 cases. Fallot[2], two years later, described in detail the four pathologic features of this condition—pulmonary stenosis, overriding aorta, ventricular septal defect, and right ventricular hypertrophy. Maude Abbott[3] did not classify her cases exactly according to Fallot's grouping, but she described 151 cases of pulmonary stenosis in her report on 1000 congenital cardiac lesions.

This syndrome is compatible with life for a number of years unless the pulmonary stenosis is of an extreme degree. Of all cyanotic infants who survive the first year of life more than half will fall into this group.

The fact that these babies do well in utero and have no cardiac enlargement at birth had an important bearing on the development of the shunt operation and the treatment of this condition. Taussig and Blalock[4] appreciated the significance of the patent ductus in relation to the well-being of these individuals during intrauterine life and as a result developed an operation in which a systemic vessel was used to shunt blood to the lung fields. This was in effect an artificial ductus. These authors first described their procedure in May, 1945. In November, 1946, Potts, Smith and Gibson[5], by using a special clamp, were able to anastomose the pulmonary artery directly to the aorta. Brock[6,7] and more recently Glover and Bailey[8] have approached the pulmonary stenosis more directly. Entering through the wall of the right ventricle they perform a valvulotomy or an infundibular resection.

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DIAGNOSIS

The clinical features result from the diminished pulmonary blood flow and the admixture of venous and arterial blood in the systemic circulation. Cyanosis is almost always prominent. This dates usually from birth or the first few months thereafter. Cyanosis is clearly visible in the nail beds and mucous membranes and may be intense, especially after exercise or crying. Attacks of dyspnea and fainting are not uncommon in infants and may be initiated by some minor incident, such as feeding, defecation, or crying. At an early age the child learns that he is somewhat relieved by squatting and that the attacks may thus be aborted. Often as the ductus closes at a few months of age the child's condition becomes worse.

Clubbing of the extremities results from the oxygen unsaturation of the arterial blood. It may become apparent at a few weeks of age but is usually not prominent until after cyanosis is well developed. The small build of the child and the slow gain in weight roughly parallel the degree of arterial unsaturation.

As a result of secondary polycythemia thromboses are common; the occurrence of this complication emphasizes the importance of avoiding dehydration. One of our patients developed a right hemiparesis at four months of age, probably due to a thrombosis.

Table 1 illustrates the clinical features in our

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five cases. Three cases had other congenital defects consisting of a bifid thumb in one case, clubbed feet in another, and microcephaly in the third.

TABLE 1
SYNOPSIS OF CLINICAL FEATURES

Cyanosis—age first noted	1 month to 24 months
Clubbing noted	6 months to 3 years
Degree of Dyspnea	severe 3
	moderate 2
Paroxysms Dyspnea	yes 4
	no 1
Retarded Growth	marked 2
	moderate 3
Squatting	yes 4
	no 1
EKG	Rt. strain 3
	Rt. axis 2

In the Tetralogy of Fallot the total heart size is usually not increased. However, hypertrophy of the right ventricle is always present and may cause some prominence of the left chest. A rough systolic murmur, often with a thrill, is found at the second left interspace. The pulmonic second sound is usually weak. These cardiac findings vary, depending on the degree of pulmonary stenosis and the size of the septal defect, and are usually not as important in the diagnosis as the general clinical features, radiologic and laboratory studies.

The blood picture consistently shows a polycythemia with red blood cell counts from six to twelve million and with a correspondingly high hematocrit.

The roentgenogram of the chest reveals a heart of about normal size, usually with a concavity in the region of the main pulmonary artery, and lung fields which are abnormally clear. With fluoroscopic study the prominent right ventricle is well seen in the right anterior oblique position; lung fields appear quiet. The aortic arch is found on the right side in about twenty-five per cent of all cases and may be located by its indentation of the esophagus as determined by barium swallow.

The electrocardiogram consistently shows a right ventricular preponderance and often strain. Peaked P waves are frequent. T waves will depend on the condition of the myocardium.

Arterial oxygen saturation as determined chemically or by the oximeter is considerably reduced below normal and decreases further on exercise. Administration of 100 per cent oxygen by mask produces only a slight elevation in the arterial oxygen saturation.

The decholin circulation time is usually shortened as a result of the over-riding aorta and right to left intracardiac shunt.

Angiocardiography may yield valuable information in the differential diagnosis of cyanotic congenital heart disease. In the Tetralogy of Fallot the over-riding aorta and the pulmonary artery fill almost simultaneously. The actual stenosis is not often visualized. The presence and size of the pulmonary arteries can be determined. Angiocardiography may be very hazardous in the poor risk patient and should be used only to clarify the diagnosis or to help the surgeon determine the most suitable operative procedure. Angiocardiography was used in one of our cases.

Cardiac catheterization studies indicate an increased pressure in the right ventricle. If the catheter can be passed through the stenosis a decreased pressure will be found in the pulmonary artery. Blood oxygen values in the right ventricle exceed those in the right auricle, thus indicating some intermixing of blood through the interventricular septal defect.

DIFFERENTIAL DIAGNOSIS

The Tetralogy of Fallot must be differentiated from other conditions characterized by cyanosis. In the newborn, atelectasis, congenital pulmonary disease and occasionally intracranial hemorrhage may cause cyanosis. Patients with Fallot's Tetralogy rarely show much cyanosis until a few weeks or months of age. By that time the diagnosis of congenital heart disease can easily be established.

When pulmonary atresia exists in the Tetralogy of Fallot, the patient's condition deteriorates rapidly in the early weeks or months of life, as the ductus closes. Only rarely are the bronchial collateral arteries sufficient to maintain life. The technical difficulties involved in the creation of a shunt for these infants are great, but not always insurmountable.

Pure pulmonary stenosis without the over-riding aorta or ventricular septal defect but often with an auricular septal defect is attracting the interest of the cardiologist and surgeon since it is also an operable lesion. The condition is characterized by a very large heart and by cyanosis which increases as the patient grows older. Angiocardiography shows de-

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layed emptying of the right ventricle and a prolonged opacification in the post-stenotic dilatation of the pulmonary artery.

In Eisenmenger complex cyanosis usually begins in adolescence. The lung fields appear extremely full and the main pulmonary artery is prominent on the roentgenogram.

Transposition of the great vessels causes a large heart and deep cyanosis in infancy. Life depends on additional congenital lesions such as septal defects or a patent ductus. Narrowing of the great vessels in the PA film and widening of the supracardiac shadow in the lateral view strongly suggest the diagnosis of transposition. Angiocardiography may provide conclusive information.

A common truncus, a single ventricle or non-functioning right ventricle are rarer congenital defects associated with cyanosis which are not usually compatible with life for more than a few weeks.

Among patients in the cyanotic group who survive the first few years of life, the Tetralogy of Fallot, pure pulmonary stenosis with an auricular defect and Eisenmenger complex are the major diagnostic considerations.

SURGICAL PHYSIOLOGY

The major physiologic disturbances in the Tetralogy of Fallot which cause anoxemia consist of a marked reduction in pulmonary blood flow and a right to left intracardiac shunt, through which a large quantity of venous blood is released into the systemic circulation. The volume of the shunt depends on the caliber of the pulmonary stenosis and the extent of over-riding of the right ventricle by the dextroposed aorta. Since the pulmonary obstruction limits any increase in pulmonary artery flow the right to left intracardiac shunt is enhanced by exercise and other factors which cause an increased cardiac output.

Several compensatory phenomena reduce the anoxemia or alleviate its effect. The polycythemia of cyanotic heart disease increases the oxygen carrying capacity of the blood. A highly desaturated venous blood is returned from the capillary bed, indicating greater oxygen extraction by the tissues. Bronchial and other mediastinal arteries inevitably enlarge and serve as collateral pathways to the pulmonary capillaries. Strangely enough the ductus arteriosus usually fails to remain open and its closure, though somewhat delayed, may precipitate a crisis in the life of the patient.

From a physiologic standpoint certain requisites must be satisfied before a Blalock or Potts shunt operation can be recommended in congenital cyanotic heart disease. The syndrome of the Tetralogy of Fallot satisfies these requisites. In this condition the blood flow and pressure in the pulmonary artery are abnormally low, so that a systemic to pulmonary artery shunt may be expected to raise these values towards normal levels. The differential in pressure between the systemic and pulmonary circuits serves to maintain patency of the anastomotic lumen. On the other hand, the Blalock operation, although possibly improving arterial oxygen saturation somewhat, would be most inappropriate in Eisenmenger complex where values for pulmonary artery blood flow and pressure already exceed the normal.

A second important consideration concerns the degree of arterial oxygen desaturation in the systemic circulation. The Blalock operation reduces the anoxemia only by shunting desaturated blood into the pulmonary bed for more complete oxygenation. As an example of a congenital heart lesion with greatly reduced pulmonary artery blood flow which, however, is not benefited by the Blalock operation, one may cite isolated pulmonic stenosis with a closed foramen ovale. Here the systemic blood is completely oxygenated. Although a shunt increases the pulmonary flow in this anomaly, the severe obstruction to the right ventricle remains unrelieved, while the burden of an artificial ductus is imposed on the left heart. Even when isolated pulmonic stenosis is accompanied by a patent foramen ovale or an interauricular septal defect with anoxemia resulting from the right to left shunt, the Blalock operation is contraindicated although anoxemia may be improved. The resulting increase in pulmonary flow causes a rise in the left auricular pressure which decreases the right to left intracardiac shunt and leads to right heart failure.

Since only a portion of the desaturated systemic blood can be diverted through the pulmonary circuit after a shunt operation for the Tetralogy of Fallot, a normal state of arterial oxygenation can never be attained. Nevertheless, with a patient at rest anoxemia is greatly reduced, and on exercise the increased demand for oxygen is more nearly matched as the

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flow through the artificial ductus rises with increasing cardiac output. Although slight cyanosis may be observed on exercise, patients experience a remarkable improvement postoperatively in their exercise tolerance.

Chief criticism of the Blalock operation has focused on the creation of an artificial ductus which imposes an additional burden on the heart without correcting the underlying abnormalities. The serious potentialities of this situation cannot be denied, but thus far the reported instances of heart failure following operation apparently have resulted from its use in atypical cases of the Tetralogy of Fallot, especially in the presence of marked dextroposition of the aorta, or in incorrectly diagnosed cases. The creation of an over-sized shunt may lead to pulmonary edema. A long period of observation will be needed to determine whether the presence of the ventricular septal defect and over-riding aorta may in some manner minimize the ill effects of the artificial ductus. A few instances of bacterial endarteritis at the anastomotic site have been reported, but these have responded well to antibiotic therapy. Fortunately the burden of the shunt is reflected chiefly on the left heart which is not otherwise strained in the Tetralogy of Fallot. The additional work load assumed by the heart manifests itself by a moderate degree of enlargement during the first three to six months postoperatively, after which no further enlargement usually occurs.

Valvulotomy and Infundibular Resection

The successes obtained by pulmonary valvulotomy in the treatment of isolated valvular pulmonary stenosis have stimulated a few surgeons to attempt a direct attack on the site of obstruction in Tetralogy of Fallot. The obstructing diaphragm of valvular stenosis may readily be approached through the chamber of the right ventricle and incised with the proper valvulotome (Brock operation). Whereas the obstruction in isolated pulmonary stenosis is usually valvular in type, this situation is encountered much less frequently in the Tetralogy of Fallot, perhaps in not over thirty-five per cent of cases. Other anatomic types of pulmonary stenosis found in the Tetralogy of Fallot include a subvalvular stenosis high in the ventricular outflow tract, a low subvalvular stenosis with a large infundibular chamber intervening between the stenosis and pulmonary valve, hypoplasia of the pulmonary artery with bicuspid valve and a long stenotic muscular channel in the outflow tract. More than one site of obstruction has often been found.

To the surgeon who is tempted to try the direct attack on pulmonary stenosis but wishes to maintain a respectable mortality rate some of these types present a real challenge. Nevertheless, in suitable and carefully selected cases resection of subvalvular stenosis offers the decided advantages of increasing the pulmonary flow as well as reducing the right to left intracardiac shunt, while avoiding an artificial ductus. It should be pointed out, however, that the pathologic situation created by the Brock procedure closely resembles Eisenmenger complex, a condition in which the life expectancy is limited to twenty or thirty years. The degree of cardiac enlargement occurring soon after the Brock procedure closely approximates that following a shunt procedure. Attempts to select suitable cases for the Brock operation by determination of right ventricular pressures at multiple levels in the outflow tract after cardiac catheterization are laborious and subject to many errors. Two other methods may be utilized. Angiocardiography assists the surgeon in recognizing in advance some of the valvular stenoses and serves to delineate large infundibular chambers, when present. Cinefluorography may increase the accuracy of this diagnostic measure. Direct inspection at the operating table of the pulmonary outflow tract and artery, the direct determination of pressures and instrumental probing provide the maximum information obtainable with present methods. Discussion of this controversial topic will not be carried further since in all of our cases a shunt was constructed.

Operative Indications

The prognosis in the Tetralogy of Fallot without treatment is extremely bad. Campbell[9] has pointed out that only one out of four patients survives to age fourteen and only one out of ten to age twenty-one. The disability during life is great. The indication for relief through surgery is therefore clear. However, surgical treatment should not be undertaken on children under two years of age unless survival without treatment appears extremely unlikely. The mortality in this age group exceeds twenty-five per cent, whereas a mortality well under ten per cent may be anticipated in patients between the ages of

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three and twelve. Likewise, patients with the Tetralogy of Fallot over twenty years of age are usually extremely poor surgical risks. Accurate diagnosis in the newborn and young infant may be especially difficult. The development of compensatory phenomena such as polycythemia and collateral circulation may permit the patient to withstand the operative procedure better at a later date. The technical problems are of far greater magnitude in tiny infants, and vessels of adequate size may not be available for anastomosis. Growth of the anastomotic lumen is restricted by non-absorbable, continuous sutures and consequently a shunt which seemed adequate for an infant may prove insufficient in later childhood. This constitutes an additional reason for delaying the operative procedure beyond infancy, if possible.

The shunt operations have not been used exclusively for Tetralogy of Fallot. In certain cases of tricuspid atresia, in truncus with bronchial arteries and in single ventricle associated with marked pulmonary stenosis, some benefit can be obtained from the operation.

PREOPERATIVE AND OPERATIVE MANAGEMENT

Patients with polycythemia display a considerable tendency to spontaneous thrombosis. In the preoperative preparation therefore, adequate hydration should be maintained to reduce the threat of postoperative thrombosis in the brain or at the anastomotic site. These patients frequently exhibit fever due to low grade pulmonary infection, and administration of antibiotics in the preoperative period often establishes a normal temperature. Digitalis is indicated for patients with evidence of cardiac failure. The presence of much cardiac enlargement or of failure, however, suggests an atypical Tetralogy, isolated pulmonary stenosis, or some other type of congenital heart disease which may respond unfavorably to a shunt procedure.

Blood loss, unless extreme, should be replaced by plasma, since the decrease in polycythemia reduces the possibility of postoperative thrombosis. Hypotension and shock also predispose to thrombosis at the anastomosis by decreasing blood flow through the shunt. Prophylactic anticoagulant therapy is unnecessary and dangerous, however. Only in the event of a cerebral thrombosis or thrombosis at the anastomotic site should anticoagulant therapy be instituted.

ANESTHESIA

Patients with the Tetralogy of Fallot present serious anesthetic problems. Intelligent handling depends not so much on the selection of a particular anesthetic agent or technique as on adherence to certain general principles.

Preoperative medication is most important and must be individualized to achieve the desired purpose without undue depression. The children must be brought to the operating room in a drowsy, calm state. Because of their low cardiac reserve, they are not able to adjust to an increased demand for oxygen imposed by excitement, crying, or increased metabolic activity. After proper sedation, it will frequently be noted that the degree of cyanosis is somewhat decreased, due to the lessened demand for oxygen.

Anesthesia must be induced quietly and smoothly so as to avoid anoxia which might result in increased susceptibility of the myocardium to severe arrhythmias and other difficulties during the operative procedure; anesthesia must be maintained by a means which allows the administration of a high percentage of oxygen. The technique must allow rapid control of the depth of anesthesia and lung expansion and must provide adequate ventilation. At certain times during the operative procedure complete control of the patient's respiration must be assumed to provide proper working conditions for the surgeon. Hyperthermia has been observed in many children undergoing surgery; in these patients it is mandatory to avoid any elevation in body temperature. This can be accomplished by the use of ice packs or a water mattress to cool the patient. Adequate means for intravenous administration of drugs, fluid, plasma, and blood must be available. Control of arrhythmias which may result from anoxia or from increased vagal tone is accomplished by the slow infusion of procaine intravenously as a prophylactic measure. When an arrhythmia or bradycardia does develop, atropine in appropriate doses is given intravenously or several hundred milligrams of pronestyl are given slowly. During all the important phases of the procedure, continuous electrocardiographic tracings yield valuable information as to the cardiac status.

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PRESENTATION OF CASES

The technical procedures utilized in the five cases in our series are summarized in Table 2. No cases needing surgery have been denied operation because of the potential risk involved. There have been no deaths, but the youngest patient requiring surgery was three years of age, a circumstance which undoubtedly contributed to the favorable results.

TABLE 2

OPERATIVE PROCEDURES

Name	Age	Location of Aortic Arch	Shunt
B.A.	5	R	Subclavian to left pulmonary artery
H.E.	6	L	Aorta to left pulmonary artery
M.R.	3	L	Subclavian to left pulmonary artery
R.B.	12	R	Subclavian to left pulmonary artery
R.K.	10	L	Subclavian to left pulmonary artery

No serious operative or postoperative complications were encountered. However, one patient (B.A.) developed an ascending thrombophlebitis in the saphenous vein, originating at the site of phlebotomy. This was controlled by heparinization for ten days beginning on the seventh postoperative day. Another patient (M.R.) developed a fever of 103 degrees on the sixth postoperative day, which failed to respond immediately to antibiotics and for which heparinization was undertaken on suspicion of a septic thrombophlebitis. The fever subsided within a few days. The cause of the fever remains undetermined, although probably of pulmonary origin. The patient now represents one of our best results. This patient also developed a transient Horner's syndrome, a complication frequently encountered after mobilization of the subclavian artery. A third patient (R.B.), with hemiparesis since four months of age, exhibited convulsions on the first postoperative day. The immediate response to dilantin therapy led us to believe that these as well as the preoperative attacks were primarily epileptic in type. No additional neurologic deficit was noted subsequently. H. E. had advanced dental caries. He underwent complete dental extraction before discharge to reduce the threat of bacterial endarteritis from dental sepsis.

In general, the clinical improvement in these children has been extremely gratifying. From the standpoint of growth, nutrition, exercise tolerance, degree of anoxemia, and personality changes, the results have been judged as excellent in four and good in one. Several of the children now play actively in a manner which appears entirely normal for their age. The changes in weight, red blood cell count, hemoglobin concentration, and cardiothoracic ratio are tabulated in Table 3. In the majority a significant gain in weight has occurred. In three patients the red blood cell count and hemoglobin levels are now approximately normal. In the two patients (B.A. and R.K.) with the greatest degree of anoxemia preoperatively slight cyanosis and polycythemia are still present.

Cardiac enlargement has occurred in all patients, but is considered of moderate degree in four. In H. E., however, the cardiothoracic ratio is now fifty-nine per cent, a value which was reached within three months after operation. Because of this cardiac enlargement and because of the patient's failure to gain weight adequately, the clinical result has been rated as good only. The relief of anoxemia has been as striking in this case as in the others. A slight anemia now existing in this patient may be

TABLE 3

Name	Age	Postop. interval (mos.)	Weight		Red Cell Count		Hemoglobin		Cardio-thoracic ratio		Clinical Result
			Preop.	Postop.	Preop.	Postop.	Preop.	Postop.	Preop.	Postop.	
B.A.	5	16	34	42	9.3	5.9	24.0	15.6	52	55	Excellent
H.E.	6	13	34	36	6.5	4.3	21.5	12.8	52	59	Good
M.R.	3	10	24	28	6.2	4.8	18.0	14.8	52	54	Excellent
R.B.	12	8	81	88	7.4	4.7	20.5	14.0	50	56	Excellent
R.K.	10	6	63	70	9.0	5.8	28.0	17.0	48	53	Excellent

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of dietary origin and related to his edentulous state.

The prognosis of these and similar patients must be guarded. The immediate results of palliative surgery appear to justify this method of treatment. There is an increased quantity of oxygenated blood available to these individuals and, as a consequence, there is less disability and a greater tolerance for activity. It is obvious that a severe disturbance in the circulation still exists after operation, which in no sense produces a cure. However, the patients are improved and, as such, pursue a relatively normal existence and become less of a burden to their parents. Only time will tell the ultimate benefits of this procedure. It seems reasonable to assume that the impairment in the circulation will reduce or postpone the fatal complications usually encountered in this disorder and thus increase the life expectancy of these individuals.

SUMMARY

1. The diagnostic features and surgical physiology characteristic of the Tetralogy of Fallot are discussed.

2. The surgical management of this condition is considered.

3. Five cases are presented which illustrate the gratifying results which may follow systemic to pulmonary artery shunt operations.

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PR Tip of the Month

Psychologically there's a jagged break in the ideal doctor-patient relationship when a patient with a minor ailment is dispatched with a prescription after one visit to the doctor. "How can the doctor tell whether the medicine helped me or not?" wonders the patient. Many doctors solve this problem by handing such patients self-addressed postcards and asking them to report on their condition in a day or two. It's a friendly "let me hear from you" gesture.

THE PR DOCTOR
November 7, 1952

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TRANSORBITAL LOBOTOMY IN REFRACTORY EMOTIONAL AND MENTAL DISORDERS— Report of 50 Lobotomies*

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Transorbital lobotomy is neither a substitute nor a replacement for the shock therapies, as the effectiveness of these methods remains unquestioned. There is, however a residuum of chronic emotional and mental disorders refractory to these usual therapies in which psychosurgery and in particular the transorbital lobotomy may be quite helpful.

Psychosurgery in its progress has seen numerous techniques evolve, notably the various modifications of the prefrontal lobotomy, gyrectomy, topectomy, thalamotomy, cortical undercutting, and the transorbital lobotomy. In common, the objectives of these various techniques has been the identification of the cortical area association-projection units that must be ablated or functionally modified in order to alleviate the symptoms of emotional and mental illness and at the same time not be accompanied by serious danger to the intellect, personality, or life of the individual.

The transorbital lobotomy meeting these requirements was first performed by Fiamberti in 1937[1] and later in 1946 introduced into the American field of psychosurgery by Freeman[2]. Freeman's 1949 modification of the transorbital lobotomy, accomplished "by means of a new twist termed the deep frontal cut"[3], at once extended the anatomical limits of the operation and significantly increased its clinical effectiveness.

Relief from the disturbing psychopathological symptoms is brought about in this operative procedure by the interruption of the continuity of a satisfactory percentage of thalamofrontal projection fibers underlying areas 9 and 10 of the prefrontal cortex as well as those entering the cortex of the orbital surface of the frontal lobes. It is in this manner that the subcortical emotional and autonomic centers are protected from cortical ideational bombardment.

The transorbital approach to lobotomy academically and practically appears to be the psychosurgical technique of choice because it is effective, simple, safe; is relatively free of complications; does not seriously impair the individuals initiative, drive or intellect[4,5]; or require lengthy periods of hospitalization and extensive postoperative rehabilitative efforts. Further, the technicalities of technique, personnel and equipment no longer offer serious obstacles in serving the individual patient, as the transorbital lobotomy may be performed by a doctor of medicine trained in the care and treatment of nervous and mental disease who has studied in the laboratory the anatomy of the frontal lobes and their relationship to the orbits[6]. The over-all mortality rate from transorbital lobotomy is less than two per cent. Postoperative epilepsy has not been reported. The activities of the ordinary home are sufficient and, in the majority of cases, preferable in bringing about a restitution of acceptable social, economic, and biological functions.

The transorbital technique has greatly facilitated the handling of certain psychoses, incapacitating psychoneuroses, and cases of intractable pain. Specifically, the operation is recommended when other indicated therapies have failed to alleviate such conditions as schizophrenia, the manic depressive psychoses, paranoid states, involutional melancholias, and severe incapacitating psychoneuroses. Contraindications include alcoholism, constitutional psychopathic states, and psychoses with organic brain disease.

A favorable result may be expected in those cases showing overt or symbolized anxiety, either as expressed by autonomic overactivity, or in the content of thought and behavior. Conversely, a delapidation of thought associated with a deterioration of affect, or diminished autonomic reactions, while not contraindicating the operation, suggest a poor result. It has been observed that the patient who derives some benefit from electrocoma therapy, or other therapies, and who does not remain well, i.e., the chronic relapsing patient or the one on a maintenance

*Read in part before the Staff Meeting, Lewis Gale Hospital, Roanoke, Va., December 20, 1950.
Read before the Staff Meeting, Shenandoah Hospital, Roanoke, Va., March 20, 1952.
Read before the Veterans Hospital Neuropsychiatric Seminar, Veterans Hospital, Roanoke, Va., April 28, 1952.
Read before the Sullivan-Johnson County Medical Society Meeting, Bristol, Tenn., May 7, 1952.

schedule, usually recovers. Lobotomy statistics vary widely, dependent upon the case material at hand. In general, state hospital patients are chronic patients and it may be said that following transorbital lobotomy one-third will show marked improvement, consistent with discharge to home care; that one-third will be improved and make better hospital patients; and that one-third remain unchanged. In earlier, more favorable cases, in whom the family maintains an active interest, more promising statistical results may be expected.

The decision for surgery is reached on the basis of positive psychiatric indications and the absence of contraindications as may be demonstrated in the history, neurological, roentgenological studies or the general medical survey. The family is informed of the unusual postoperative probabilities and their responsibility to the patient in the convalescent period. The patient, if not already a hospital patient, is hospitalized. The day prior to surgery repository penicillin is administered and continued daily for three days. I find it advantageous to prepare the patient for sodium pentothal anesthesia, as instances have arisen that require its use even though electrocoma has been selected as the anesthetic. In the majority of cases three to five electrocoma treatments, given in series, produce sufficient depth and length of anesthesia to complete the operation without undue haste. On occasions it has been necessary to give an additional electrocoma treatment after completing the first side. In the absence of local inflammations, conjunctivitis or sinus disease, no special treatment or preparation of the operative field is necessary as the bacteriostatic effect of the lacrimal fluid is sufficient.

The operative technique employed is as described by Freeman[7]. The upper lid is retracted and the leukotome (Fig. IA) is introduced into the vault of the orbit, 3cm., from the midline, posterior to the frontal sinuses, lateral to the ethmoids and anterior to the attachment of the ocular muscles. The instrument is oriented parallel to the bony bridge of the nose, in a frontal plane, and is driven through the orbital plate until the 5 cm. mark is opposite the margin of the upper lid. The handle of the leukotome is then pulled laterally in the same plane as far as the bony conformation of the orbit will permit, so as to sever the thalamofrontal fibers in the medial lower quadrant of the frontal lobe. It is then returned in the same plane to its original position parallel to the bony bridge of the nose. The point is then deviated slightly to the midline and a few more light taps force the instrument through the orbital plate to a depth of 7 cm. Again the instrument is carefully oriented in the frontal plane and the handle is deviated medially to barely touch the ala of the nose (20 degrees). It is then moved laterally 30 degrees and in favorable cases, withdrawn. These latter two maneuvers sever the thalamo-frontal radiation in the upper quadrants

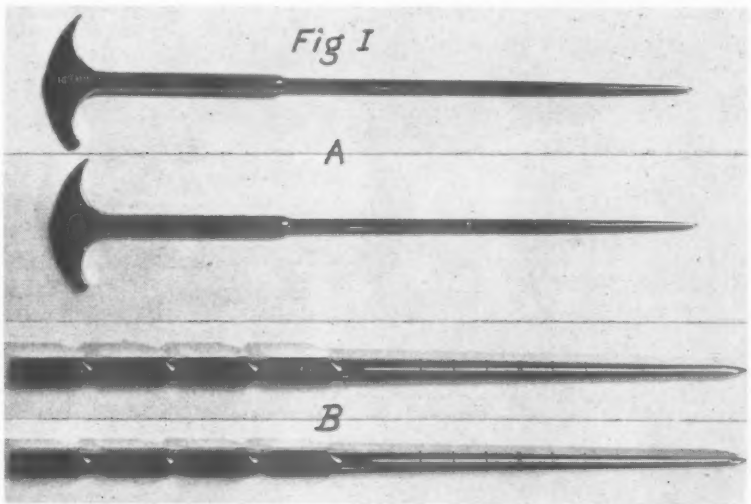

Fig. I.

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of the frontal lobe (thalamo-frontal projection fibers underlying areas 9 and 10). In the more serious cases an additional maneuver directed toward the thalamic projections in the more posterior and basal portions of the frontal lobe is required. The handle of the leukotome is deviated to subtend a 30 degree angle to the midline. From this position, and maintaining the 30 degree angle deviation, the handle is slowly and evenly elevated fracturing the orbital plate allowing the shaft of the instrument to almost parallel the orbital plate. In this maneuver the thalamofrontal fibers are severed as they bend around the anterior horn of the lateral ventricle and turn medially to enter the cortex in the vicinity of the gyrus rectus (Fig. II). If the orbital plate is heavy and tough, rendering it impossible to complete the deep frontal cut with the transorbital leukotome, then the orbitoclast (Fig. IB) is used to complete the maneuver.

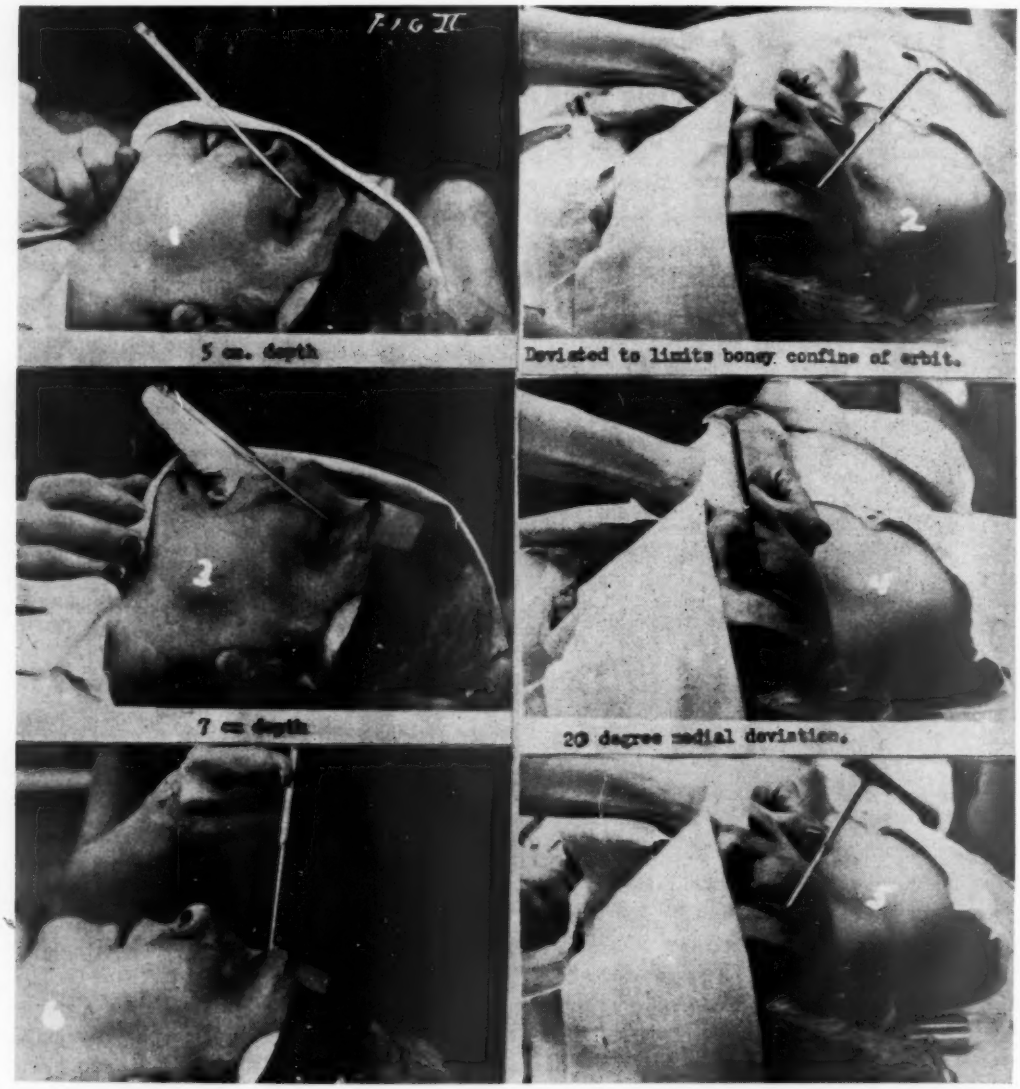
FIG II
5 cm. depth
Deviated to limits bony confine of orbit.
7 cm depth
20 degree medial deviation.
Elevated, breaking orbital plate, returned to sagittal plane, withdrawn
30 degree lateral deviation

Fig. II.

Special nurses are frequently necessary for forty-

eight hours, as periorbital edema usually within one hour closes the eyelids, producing a mechanical blindness, lasting one to two days, which interferes with the patient's ability to contribute much to his own care. The temperature, pulse, and blood pressure determinations as well as neurological and surgical observations are made frequently. A drop in blood pressure to 80/60 is not unusual, and in hypertensive states a reduction of fifty per cent is average. Sedatives are omitted and given only on special order. Spontaneity is impaired and somnolence is the rule. Recognition and verbalization return in one to three hours and the patients are encouraged to converse. On occasions a moderate amount of disorientation and misidentification occurs, lasting from a few hours to a day or two. If, after the second day activity of the psychosis persists, electrocoma therapy is given in sufficient quantity to control the residual symptoms. Rarely will a patient require catheterization and occasionally one may be incontinent for a short while. Hyperesthesia of the lower extremities is characteristic, lasting from one to several days. In a few cases the Babinski reflex is positive. Unilateral ptosis of the eyelid due to injury of the tarsal cartilage requiring ten to fourteen days for recovery, occurred in two cases. One patient became somnolent on the third postoperative day, his blood pressure elevated and he quickly lapsed into coma. The spinal fluid under 200 mm. water pressure was xanthochromic and contained 25,000 red blood cells plus 2200 white blood cells with polymorphonuclears predominating. This complication was diagnosed as an intracerebral hematoma which had evacuated itself into the ventricular system. He recovered rapidly following spinal drainage. Death occurred in a fifty-eight year old female during the twelfth postoperative hour. During the eighth hour coagulum and blood were aspirated through a brain trochar introduced into the lobotomy wounds. Earlier irrigation and aspiration might have been more effective. Ambulation is begun on the second day and in favorable cases the patient is ready for surgical discharge on the third or fourth postoperative day to in-patient or out-patient neuropsychiatric observation.

During the convalescent period following the immediate recovery from surgery one encounters some degree of forgetfulness, uncertainty and hesitation which is overcome with a minimum of help and reassurance. In some instances a release of inhibitions associated with an increase in libidinal drive and a tendency to be outspoken or profane may characterize this phase of recovery. The average convalescence is easy and is not marked by any special trend other than relaxation, relief of tension, and a carefree attitude with the majority of the improvement occurring in six weeks. The operation is generally followed by the development of a more wholesome adaptive personality type, relieved of disorganizing fears, anxieties, obsessions, delusions and hallucinations. Practically all remarks made by those in position to observe, professional and lay alike, make such remarks as "a more wholesome personality, better than I have ever known him or her before, etc.".

My interest in the transorbital lobotomy developed from the backlog of "chronic shock cases" encountered in the handling of some five hundred and thirty psychotics principally on an ambulatory outpatient basis with electrocoma therapy. Of these, seven "maintenance" cases, ten relapsing problems and seventeen refractory cases have been selected for transorbital lobotomy. The remaining thirteen cases were derived from the following sources: Seven chronic problems were brought from a state hospital; five chronic and refractory cases were referred from sanatoria, and one pain case (tabes dorsalis, gastric crises) were operated from private practice.

In all, forty-seven cases in which fifty operations have been performed during a two year period, are covered in this report. Three cases were re-operated because a relapse occurred which did not respond to electrocoma therapy and all occurred in cases in which the deep frontal cuts were incomplete.

Diagnostically, the following conditions were encountered: Schizophrenia 28 (hebephrenics 3, paranoids 7, catatonics 12, mixed 6); manic depressive psychosis 7 (manics 2, depressions 5); psychosis with other somatic disease (serious depression and repeated suicidal attempts) 1; involutional melancholias 7; psychasthenics 2; psychosis with cerebral arteriosclerosis 1; tabes dorsalis 1.

The geriatric case and the tabetic may be dismissed with the statement that the course of the geriatric problem was uninfluenced by lobotomy and that the tabetic, although continuing to have gastric crises required only small amounts of codeine or

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TABLE I

TRANSORBITAL LOBOTOMY

Schizophrenia

DURATION OF ILLNESS				RESULTS—1-24 MONTHS					Post Operative ECT	Returned to Former Occupational Status
2-12 Mos.	1-3 Yrs.	3-10 Yrs.	10+ Yrs.	A	B	C	D	E		
8				8	0	0	0	0	3	8
	5			2	2	1	0	0	4	3
		4		4	0	0	0	0	3	4
			11	4	6	1	0	0	7	5
Totals.....			28	18	8	2	0	0	17	20

Manic Depressive Psychosis

DURATION OF PRESENT ATTACK				RESULTS—1-18 MONTHS					Post Operative ECT	Returned to Former Occupational Status
	2-12 Mos.	1-3 Yrs.	3-10 Yrs.	A	B	C	D	E		
De-pressed	2			2	0	0	0	0	0	2
		3		3	0	0	0	0	0	3
			1	0	0	0	0	1	0	0
Manic	2			2	0	0	0	0	0	2
Totals			8	7	0	0	0	1	0	7

Involutional Melancholia

DURATION OF PRESENT ILLNESS			RESULTS—1-24 MONTHS					Post Operative ECT	Returned to Former Occupational Status
	1-3 Yrs.	3-5 Yrs.	A	B	C	D	E		
	5		5	0	0	0	0	1	5
		2	2	0	0	0	0	1	2
Totals		7	7	0	0	0	0	2	7

Psychasthenia

DURATION OF PRESENT ILLNESS			RESULTS—6-8 MONTHS					Post Operative ECT	Returned to Former Occupational Status
	1 Yr.	10 Yrs	A	B	C	D	E		
	1		1	0	0	0	0	0	1
		2	0	1	0	0	0	1	1
Totals		2	1	1	0	0	0	1	2
Total		45	33	9	2	0	1	20	36

A Without symptoms of Psychosis; *B* Marked Improvement; *C* Slight Improvement; *D* No Improvement; *E* Operative Death.

phenobarbital for relief, rather than his customary 2 grains of morphine.

Schizophrenia accounted for 62.2 per cent; of the remaining case material, however, this did not unfavorably influence the results, as we see (Table I) that of the 28 schizophrenics operated, 26 were either relieved of the symptoms of the psychosis or were markedly improved. The schizophrenics of one year or less duration are now free of symptoms of the basic psychosis, whereas only 50% of those over one years duration responded as well.

The manic depressive and involutional melancholia groups accounted for 14 cases and all achieved complete remissions, except for one case recorded as an operative death.

Postoperative electrocoma therapy was required in the handling of the residual symptoms in 44.4% of the tabulated cases with an incidence of 60.7% in the schizophrenics, 20.8% in the involutionals, 100% in the psychasthenics, and 0% in the manic depressives. The necessity to administer postoperative ancillary therapy in 44.4% of the operated cases, in order to bring about a successful conclusion, does not in my opinion minimize the importance of the transorbital lobotomy procedure. Quite to the contrary, cases previously refractory to electrocoma therapy or insulin coma therapy react extremely well to electrocoma therapy given postoperatively. In this manner an over-all satisfactory result has been obtained in 93.7% of the transorbital lobotomy patients.

The present status of the 47 cases operated (38 females, 9 males) is as follows: 2 are residents of a state hospital; 3 have deceased (one operative death, one geriatric death, and one death occurred when two months after operation electrocoma therapy was administered to control a relapse); 7 help around the home; 20 are housewives; 13 remain in public industry and 2 are self employed. Only two of those employed are employed at a lower occupational level.

It is of course recognized that this report is still in a fluid phase and continued observations with 5 and 10 year follow-ups will be necessary prior to final evaluation of the procedure; however, at this point, I do want to emphasize that one gains the feeling of a certain solidity in the permanency of cure in working with the transorbital patient.

CASE REPORTS

Schizophrenia, acute, catatonic type: Case 1: D.K.C., age 30, W., F., housewife and clerical worker. No history of previous nervous or mental disorder. Acute onset of mental illness in September, 1949, characterized by odd, impulsive behavior, religious preoccupations, ideas of reference, the expressed belief that people were talking about her, her reputation, etc., delusions of persecution, auditory hallucinations, periodic catatonic stupors and excitements, lack of insight and impaired judgment. She received electrocoma therapy, AC technique times 46 from September, 1949, to February, 1950. While in an extreme degree of catatonic excitement, a bilateral transorbital lobotomy, with deep frontal cuts, was performed on February 10, 1950. She was rational and coherent the following day, and was discharged to home care on the third postoperative day. She has remained non psychotic, and is in excellent mental health. She is employed as housewife, and is now caring for her child born in August, 1951.

Schizophrenia, chronic, unclassified, and with marked anxiety and increased autonomic responses: Case 35: A.L., age 29, W., F. Committed patient, state hospital. Duration of illness 10 years with complete departure from reality in the past five years during which time she has for the most part remained completely inaccessible being preoccupied in her own world of fantasy, presumably suffering from auditory and visual hallucinations; talking incessantly, rapidly and incoherently—with anxiety featuring her behavioral and autonomic responses. In 1946, while in a private sanatorium, she received electrocoma therapy for several weeks, failed to respond to therapy, was committed to a state hospital in 1947, and remained in residence until furloughed August, 1951, for purposes of transorbital lobotomy. A hypnotic was administered in her home in order to facilitate her admission to the hospital for transorbital lobotomy which was performed on August 14, 1951. She was discharged from the hospital to outpatient care on August 20, 1951, and has shown no signs of activity of the former psychotic condition. Heterosocial and presumably sexual activity complicates her non-institutional life. Sterilization has been advised.

Schizophrenia, chronic, catatonic, without anxiety and with diminished autonomic responses: Case 34: S.E.P., age 36, W., F. Committed patient, state

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hospital. Duration 8 years plus. Treated in sanatoria on four occasions 1943-47. Committed to a state hospital in 1947, at which time she is said to have been apathetic, seclusive, refused to eat at the table, destroyed her clothing and was completely out of contact with reality. Her hospital residence has been characterized by marked periods of disturbance, with intermittent periods of seclusion, retardation, refusal of food, and mumbling as if responding to auditory hallucinations. She was furloughed for purposes of transorbital lobotomy.

The preoperative examination revealed an apathetic, dull individual with immobile facial expression, blunted affective responses and a devastated vacuous personality. Anxiety could not be demonstrated either in the content of thought or in examination of the nervous system. Physically asthenic, with blood pressure of 85/56, and pulse of 74. Muscle tone poor and reflexes diminished. Physical status as hypotonic as her emotional reactions. Prognosis thought to be hopeless without lobotomy and possibly poor even with lobotomy.

A transorbital lobotomy was performed on August 8, 1951. All maneuvers were completed easily, except the deep frontal cuts, the handle of the leukotome being elevated only to about 50% of its maximum range. Following an uneventful convalescence she was discharged from the hospital on the morning of the 6th postoperative day. She was readmitted the same day, because she became combative, assaultive and made unkind remarks to her relatives and others in her presence. Four postoperative electrocoma treatments were given with marked improvement, and she was again discharged to outpatient psychiatric care. She received a total of twelve electrocoma treatments in the postoperative period with complete remission after the fourth treatment. She has remained well and now is employed as waitress in a local hotel.

Involutional melancholia: Case 41: L.F., age 62, W., F. Keeps home for daughter. Prepsychotic personality and personal history characterized by difficulty in intrapersonal relationships, introverted, distant, shy, difficult personality patterns, unhappy marriage, frequent quarrels, sexual frigidity, and death of husband occurring ten years prior to onset of present illness. First attack occurred at the age of 55, terminated by a spontaneous recovery. The second attack occurred four years later and was manifest by a mood depression, with feelings of guilt and unworthiness, self accusatory ideas "over evil in the past", of "not loving my children", nihilistic delusions concerning "evil in my stomach and of being dead", and complete lack of insight with impairment of judgment. She received thirty-five electrocoma treatments from March through July, 1949. The recovery was difficult and prolonged. A relapse occurred in November, 1951, with return of symptoms as above. In view of the difficult protracted recovery, and relapsing quality of the reaction, psychosurgical intervention was advised. A transorbital lobotomy was performed on November 26, 1951, and she was discharged to outpatient care on November 29. An uneventful recovery and convalescence followed with her general reaction characterized by ease of personality, return of interests, improvement of health, gain in weight, acceptable economic and social patterns, and freedom from the symptoms of the psychosis.

Manic depressive psychosis, manic type: Case 32: E.V.L., age 44, W., F., secretary. Increase in severity of attacks and decrease in time interval between attacks with the development of a perpetual state of hypomania, subject to periodic exacerbations. Duration 10 years. Attacks characterized by increased psychomotor activity, euphoria, grandiosity, elation, flight of ideas, repetitive delusion of "falling in love with my employer", marked impairment of insight and judgment. There is a past history of six or more admissions to various neuropsychiatric hospitals with attacks moderated by electrocoma therapy. A transorbital lobotomy was performed on July 26, 1951, and she was discharged to outpatient observation on the fifth postoperative day. On the tenth postoperative day she returned to work as secretary in a small office and, after a proving time of two weeks, accepted her present position as secretary to an executive in the farm division of a local bank. She states "my mind is not impaired in any way. I do not work quite as fast as I formerly did; however, I can do more". She remains in a complete remission from manic or hypomanic activity.

Conclusions: (1) Transorbital lobotomy is an effective, economical and practical psychosurgical technique, recommended for the relief of the emotionally and mentally ill, refractory to other forms of therapy. (2) A series of 50 transorbital lobotomies

in 47 consecutive cases with a satisfactory therapeutic result in 93.7% is recorded. The expanded application of this technique may eventually bring about undercrowding rather than existing overcrowding in our mental institutions.

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Report Enzyme Helps Prevent Kidney Stones.

Hyaluronidase (an enzyme) mixed with isotonic sodium chloride solution has aided in the prevention of kidney stones, it was reported in a recent J.A.M.A.

A study of 24 persons in whom kidney stones previously formed at a rapid rate showed that injections of the drug under the skin every 24 to 48 hours prevented the formation of new kidney stones and prevented further growth of existing stones in 19 cases (79 per cent). In four patients (16.6 per cent), the size of the existing stones became smaller and less dense.

The article stated that it is generally accepted, although not conclusively proved, that the formation of kidney stones is the result of the clumping together of crystalline matter in the urine. Ordinarily, this is prevented by the presence of a colloidal material which coats each crystal. This coating prevents any tendency toward clumping. In patients with a tendency toward kidney stones, hyaluronidase seems to promote this coating of the crystals.

The effect of the drug is manifest within 30 minutes and persists for 24 to 72 hours. The dosage varies according to individual needs. Adequate dosage is essential, it was pointed out, as insufficient dosage might result in the exact reverse of the intended purpose. In contrast to many other medications, an overdose of hyaluronidase does not produce adverse effects.

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ALLERGY: AN ATTEMPT TO MAKE THIS PROTEAN CONDITION MORE UNDERSTANDABLE TO THE UNINITIATED

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Liaison between allergists and other members of the medical profession, and between allergists and laymen, has never been as satisfactory as it should be. Allergy has always, in the minds of some, been surrounded by misconception, and shrouded in misunderstanding. At times entirely too much has been expected of clinical allergy, while at others, far too little has been anticipated. Clinical allergy has never attained its rightful and deserved position in either medical or lay circles. During the pioneer days of the early twenties allergy became the ugly duckling of specialization. However, the thirties and forties witnessed its transformation into a true Cinderella. Now it would appear that this charming Miss is undergoing a certain degree of deglamorization, and all because of a lack of down-to-earth understanding of what clinical allergy really is, and what it truly seeks to accomplish.

It is with the hope that a more practical and realistic understanding of the nature and ambitions of clinical allergy may be attained by all, that this paper is written.

WHAT IS ALLERGY?

In attempting to answer this question one should be mindful of both the broad and more restricted interpretation of the meaning of allergy.

In 1906 von Pirquet[1] coined the term "allergy" which he defined as changed or altered capacity to react. This is a cellular rather than a humeral phenomenon. Usually the reaction is bizarre, and the site is ofttimes unpredictable. Thus the ingestion of egg in one individual may cause asthma or mucous colitis[2], while the same food in another may produce eczema, migraine, or even cardiac arrhythmia[3], depending upon the location of the affected shock (sensitized) organ (tissue cells). The reaction always occurs in previously sensitized cells. Not infrequently an antigen (allergen) -antibody mechanism can be demonstrated. However, in many instances of clinical allergy specific antibodies cannot be found. Classical examples of allergy without demonstrable specific antibodies are: contact dermatitis, certain drug allergies, some cases of urticaria and angioedema, bacterial allergy, and most cases of migraine.

Sir Thomas Lewis's[4] histamine theory to explain the phenomena of anaphylaxis and allergy, has been accepted by most competent observers. This assumes that the union of antigen and antibody in the shock tissue produces cell injury, with resulting liberation of a histamine-like substance (H-substance), which in turn produces the anaphylactic or allergic response. Furthermore, Grant and his associates[5] showed that parasympathetic impulses, acting through the mediation of acetyl-choline, may cause the release of H-substance.

Formerly it was believed that only protein substances were capable of producing allergic reactions, but now we know better. Nonprotein agents may combine with the recipient's blood serum, or even with macerated or diseased tissue, to form a combination protein and nonprotein antigen. This is called a hapten[6]. Haptens are capable of producing the allergic reaction. Furthermore, subsequent reactions may be caused by the nonprotein element alone. A number of nonprotein drugs are allergenic because of their ability to form haptens.

THE BROADER CONCEPT OF ALLERGY

von Pirquet's definition of allergy is intrinsically broad. The application of this concept that all instances of altered capacity of cellular reaction indicate the presence of allergy, is, in the writer's opinion, one of the main hindrances to complete understanding and acceptance of allergy by the uninitiated. But this principle we must accept, for this is truly allergy in its broadest aspect. Thus, one finds a great number of clinical conditions alluded to as being allergic in origin, or at least influenced by allergic factors. Such a list might include tuberculosis, tularemia, scarlet fever, contact dermatitis, erythema nodosum, erythema multiforme, purpura, acne, canker sores, acute gastro-enteritis, mucous colitis, cylic vomiting, appendicitis[7], hematuria, cystitis, arthritis, epileptiform variants[8], Meniere's syndrome, blood dyscrasias, erthroblastosis fetalis, retinal edema, keratoconjunctivitis, vernal

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catarrh, thrombo-angiitis obliterans[9], coronary artery disease, arrhythmias, cardiac asthma, hypertension, Löffler's syndrome, fatigue, depression, allergy to insects, allergy to parasites, allergy to chemical agents, allergy to physical agents, allergy to emotional stimuli, *et cetera.*

Contact dermatitis is an intriguing condition which presents interesting industrial and economic problems. It attacks from without, and involves only (except in the event of complications) the epidermis. Antibodies have not been demonstrated, but there is always a latent period between initial exposure and the appearance of symptoms. Schwartz[10] and Waldbott[11,12] have made significant contributions to the recognition, diagnosis, and etiology of these conditions.

COLLAGEN DISEASE

Collagen disease includes a group of clinical conditions in which one finds various, and sometimes widespread, stages of connective tissue changes. Because connective tissue is so abundant in all arteries, as well as various other organs, collagen deterioration has been referred to as diffuse arteritis, or mesenchymal disease.

Histologically, the connective tissue system is composed of cellular elements, fibrils, and a homogenous ground substance. The cells are fibroblasts, eosinophiles, plasma cells, pigment cells, and fat cells. The white, or collagenous fibrils, are the outstanding characteristic constituents. When boiled down with water connective tissue yields animal glue or gelatin, hence the name collagen.

When injured, connective tissue shows great powers of regeneration. The response to injury may be localized, as in the case of keloid, while at other times it may be widespread and caused by minimal stimulation. The changes noted are swelling and enlargement of the fibrils, together with proliferation and degeneration of the cellular elements. The fibrils become fragmented, refractile, and matted together. This is referred to as fibrinoid degeneration.

It is thought that fibrinoid degeneration may occur as a result of many and apparently unassociated causes: toxic metabolites, allergy to drugs, shock, endocrine imbalance, foreign protein injection, and even the aging process.

Criep[13] lists eleven disease entities under the general grouping of collagen disease. These are serum disease, lupus erythematosus disseminatus, Libman-Sachs syndrome, scleroderma, rheumatic fever, rheumatoid arthritis, periarteritis nodosa, dermatomyositis, nephrosclerosis, sclerema neonatorum and thrombo-angiitis obliterans. He calls attention to the fact that lupus erythematosus has occurred in man following the injection of foreign serum; that periarteritis nodosa has been demonstrated in man both after the injection of foreign sera and the administration of sulfonamides, and that the possible allergic basis of rheumatic fever is suggested by some of its allergic concomitants, namely, urticaria, eosinophilia, and erythema multiforme. In summary, he states in part: "There is some evidence, both clinical and experimental, which indicates that the development of some of these conditions may be closely related to the phenomena of hypersensitiveness."

Kerr[14] feels that one or more strains of beta-hemolytic streptococcus are all-important etiologic factors in rheumatic fever, and that the silent period following the initial symptoms in the pharynx suggests the probability of the mediation of some immune mechanism in this disease. He points out that antibodies to the streptococcus are increased during this period.

The writer has observed the development of one case of fatal periarteritis nodosa in a middle aged woman, while being treated with fairly large daily doses of benadryl for urticaria and angioedema.

COMMENT

Many of the conditions discussed thus far, and especially those associated with fibrinoid degeneration, are not amenable to conventional anti-allergic methods alone. The allergist, unless he is also a competent internist, frequently finds that he is unable to cope with the vagaries of many of these diseases. At times the ideal combat team may consist of allergist, dermatologist, pediatrician, internist, gastro-enterologist, neurologist, surgeon, medical specialist, surgical specialist, roentgenologist and endocrinologist.

The new hormones, ACTH and cortisone, are frequently helpful, and sometimes effective, in the management of the collagen disease group. The antibiotics are also signally useful in the management of certain members of this group. We still have much to learn about the pathogenesis and therapy of many of these conditions.

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ATOPY (ATOPIC ALLERGY)

During the third decade of the present century, Coca[15] gave us a new term to delineate certain of the allergic conditions. Atopy, taken from the Greek, means "strange disease". Heredity is a determining factor, and appears to follow the probability of Mendelian transmission.[16] In the neighborhood of ten per cent of all peoples are affected. Specific antibodies (reagins) are the sensitizing agents, and their presence can be demonstrated by the Prausnitz-Kustner technic of passive transfer. Skin tests are reliable in ten to ninety per cent of those examined, and in the majority of instances, above sixty to seventy per cent. However, hay fever is probably the only condition solely atopic; i.e., in every instance symptoms are the result of contact between a non-bacterial substance (pollen) and tissues specifically sensitized to it.

These conditions consist of: bronchial asthma, hay fever, perennial allergic rhinitis, atopic dermatitis (infantile eczema), some cases of urticaria, angioedema, migraine, purpura and gastro-enteritis. These are the conditions the allergist prefers to see, for these are the diseases he is best prepared to diagnose and to treat successfully. It has been stated that eighty to ninety per cent of atopic individuals should get eighty to ninety per cent relief with proper treatment.

TREATMENT OF ATOPY

Ideal management of these cases still consists, fundamentally, in the employment of specific measures based on history, physical examination, clinical laboratory studies, x-rays, observation, and skin tests. Actually, management usually involves diet, hyposensitization, and avoidance. These measures, to be adequately effective, must be carried out over a period of months or even years. Some must learn to live with their allergies throughout a lifetime. Not infrequently the use of certain drugs for symptomatic relief is indispensable.

Recently, in some quarters, it has become common practice to treat most cases of atopy with drugs alone, and particularly with some of the newer ones: antibiotics, antihistamines, ACTH and cortisone. This does not, in the opinion of most competent allergists, constitute either adequate or satisfactory treatment.

Feinberg[17] finds that the antihistamines are relatively ineffective in asthmatic conditions as compared with epinephrine, aminophylline, iodides and the like. Furthermore, he feels they are not to be trusted in allergic emergencies, and that they do not eliminate the necessity and desirableness of specific diagnosis and treatment.

Cooke *et al*[18] following comprehensive and well controlled clinical studies of the effects of ACTH and cortisone in asthma, dermatitis, and urticaria, report a favorable symptomatic response in practically all cases during their administration, but that this effect lasted only a short time after the drugs were discontinued. They concluded that adequate allergic studies, in these cases, are as imperative as ever. However, they also feel that the value of the temporary respite offered by these preparations should not be minimized.

Friedlander and Friedlander[19] found that orally administered cortisone (cortone) is readily absorbed from the gastro-intestinal tract, and is equally as effective as intramuscularly administered cortisone. In their experience, hay fever, asthma, urticaria, atopic dermatitis, and contact dermatitis were often completely relieved, and the onset of such improvement was more rapid than with the parenterally administered drug. They feel that close supervision of these patients is imperative so as to avoid the sometimes dangerous side effects of this type of hormone therapy.

One might cite many more similar studies and conclusions from the recent medical literature. The concensus is that the newer hormones are quite useful in the management of certain phases of the allergic state, and that they are particularly adapted to control critical episodes in the course of these diseases. On the other hand, it is equally evident that these newer drugs should not supplant the time-honored technics of allergic diagnosis or specific treatment. They should be regarded as decidedly worth-while adjuvants. They should not be administered indiscriminately or without adequate knowledge concerning contraindications, and untoward, and sometimes critical, side effects.

The antibiotics are indispensable in treating certain of the allergic conditions listed above in the discussion of the broader concept of allergy. They are also our most effective weapons against certain of the collagen group of diseases. Whereas they do not

affect the atopic conditions *per se*, they are most useful in the control and cure of certain complications, chiefly bacterial and viral infections.

SUMMARY

1. It is to be feared that the ideals, implications and ambitions of clinical allergy have been grossly misunderstood. This may be due primarily to the all-embracive nature of this protean condition.

2. An attempt has been made to explain the nature of allergy, and the immunological mechanism through which it usually functions.

3. For the sake of better orientation, and the hope for clearer delineation, the subject has been discussed under (1) the broader concept of allergy, (2) collagen disease, and (3) atopy. Universally known and accepted members of each of these arbitrary groupings have been designated and discussed.

4. It seems obvious that the best interests of the atopic patient are served when he is studied and treated in accordance with the time-honored technics of skin testing, hyposensitization, and avoidance.

5. The indications and contraindications for the exhibition of some of the newer drugs have been regarded in the light of the experience of competent observers in the field of allergy.

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END-RESULTS IN OPERATIONS FOR FUSION OF THE LOWER SPINE

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Reports of results from surgical fusions of the lower back have been very numerous in medical literature for the past several years. New techniques for spinal fusion are reported with rather frequent regularity. There apparently is a wide variance of opinion regarding indications for fusion and management of the patient post-operatively. These differences of opinion make it difficult to truly evaluate the reported end-results obtained. The following study was undertaken to evaluate, for our own information, the end-results obtained in operations for fusion of the lower spine, in what we believe to be ideal conditions for selection of patients and post-operative care and management.

The patients included in this survey were treated at McGuire Veterans Administration Hospital, Richmond, Virginia. All cases of spinal fusion operations for relief of low back pain for the year 1948, 1949, and the first six months of 1950 are included. Those cases having spinal fusion for tuberculosis of the lower spine have not been included in this report. A minimum of one year since operation has lapsed in all cases, with the follow-up on some being over three years. All patients were evaluated by X-rays at least six months after operation and also by personal interviews and by follow-up letters. While the total number of patients is not large, we believe the results obtained are very significant and demonstrate, at least to us, that good results from fusion of the lower spine are dependent on many very important pre-operative and post-operative factors.

SELECTION OF PATIENTS:

The Orthopaedic Service of this hospital is staffed by a Resident House Staff and supervised by Consultant and Attending Orthopaedic Surgeons. The latter are all Board Diplomates from the teaching staff of the Medical College of Virginia, Richmond, Virginia. All patients included in this study were examined personally by two or more of the visiting Orthopedists, prior to operation. All patients had an intensive course of conservative therapy before a decision for operation was made. This included immobilization in a spica cast extending from the nipple line to just above the knees for a period of four weeks. If a patient became symptom free with conservative treatment, but developed a recurrence of symptoms in spite of a brace, lumbosacral support, exercises, etc., he would be considered as a candidate for spinal fusion. It was obvious to us that if a patient could not be made symptom free by complete rest and immobilization, that no benefit could be reasonably expected from surgical fusion of the lower spine. Those patients who were pension candidates for service connected disabilities of the low back were not considered as good candidates for spinal fusion. If there was a question as to the advisability of a spinal fusion, the opinions of several of the Attending Orthopedists were obtained before a final decision for operation was made.

OPERATIVE TECHNIQUE:

A modified Hibbs type spinal fusion was done on all patients in this study. Spinal anesthesia was used in the majority of cases. A few were anesthetized by sodium pentothal induction followed by endotracheal intubation. The area of spinal fusion was exposed by a midline incision and the soft tissues subperiosteally reflected from the spinous processes, posterior surfaces of the lamina and from the posterior aspect of the first two sacral segments. The articular facets of the involved vertebrae were exposed on both sides. The spinous processes were split longitudinally and removed. All cortical bone was removed from the posterior surfaces of the laminae and the posterior cortex of the first two sacral segments. After decortication of all exposed bony surfaces of the fusion area, linear segments of cancellous bone were placed between the articular

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surfaces of the facets. The entire fusion area was then covered completely with several layers of matchstick size cortical and cancellous bone. In about half of the cases, supplemental autogenous bone was taken from the posterior iliac area and in the remaining cases, supplemental homogenous cancellous bone was used from the Bone Bank. At approximately seven days post-operatively the sutures were removed and a spica cast applied from the nipple line to just above the knees. We have found that delaying the application of the cast for several days made the patient much more comfortable in the immediate post-operative period and prevented a great deal of abdominal distention.

POST-OPERATIVE MANAGEMENT:

Nearly all patients remained in the hospital for a minimal period of ten weeks following operation. During this period they were placed on a gradually increasing course of exercises to strengthen the lower back. Each patient was allowed to be ambulatory on a wheeled litter and was provided with a pair of walking canes to propel the litter about the wards and to other parts of the hospital. The physiotherapist on duty on the ward supervised each patient daily in the carrying out of back strengthening exercises. The patient remained in the cast for an average period of nine weeks. Following removal of the cast, a further regime of back exercises was given, with instructions to continue all exercises for an additional period of two months. No external back supports or braces were used following removal of the cast.

FIGURE 1

Total Number Patients	44 (all male)
Average age:	35 years
Youngest patient	22 years
Oldest patient	56 years

Average length of immobilization following operation—9 weeks.

FIGURE 2

Indications or Reasons For Operation.

Unstable lumbosacral joint. (congenital anomalies, etc.)	19
Spondylolisthesis	18
Hypertrophic arthritis of lumbosacral spine	2
Old compression fracture of lumbar spine	1
Pseudoarthrosis of previous spinal fusion	4
Total	44

FIGURE 3

Area of and Length of Operative Fusion

L-4 to sacrum	39
L-3 to sacrum (all for spondylolisthesis at L-4)	4
D-12 to L-4 (for compression fracture at L-2)	1

RESULTS:

In evaluating these patients we have attempted to determine what the result has been from a clinical and X-ray standpoint, but, more importantly, what has been the result as far as the patient himself is concerned. With these factors available, we have then attempted to correlate the clinical result with the patients functional result.

Pseudo-arthrosis, as demonstrated clinically, and by X-rays (made in flexion and extension and right and left lateral bending) was present at the end of six months *in eleven of the forty-four cases, or a percentage of 25%.*

Each patient in this series was then contacted either personally or by letter and asked to evaluate the result of his operation into one of the following categories:

1. The operation has cured my back pain.
2. The operation helped, but did not cure my back pain.
3. The operation only slightly improved my back pain.
4. The operation did not change my back pain.
5. The operation made my back pain worse.

The results from this personal survey were as follows:

FIGURE 4

Patient's Evaluation of Result Obtained.

Group I	7	15.8%	Cured
Group II	19	43.1%	Improved
Group III	5	11.4%	Slightly improved
Group IV	6	13.6%	No change
Group V	4	9.1%	Worse
No reply	3	6.8%	

From the patient's standpoint, approximately 70% were improved by their operation. We were then interested to know the opinion of the patients in those cases with clinical and X-ray evidence of pseudoarthrosis. Replies were obtained from each of these patients, and are as follows:

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FIGURE 5

Group I	1	9%	Cured
Group II	1	9%	Improved
Group III	2	18%	Slightly improved
Group IV	5	45%	No change
Group V	2	18%	Worse

From these figures it is apparent that of the ten patients (figure 4) who classed the results obtained as unsatisfactory, pseudo-arthrosis was present in seven of these cases. It is very interesting that two patients with pseudo-arthrosis felt that they had been definitely improved by their operation.

In those patients with a successful result from a clinical and X-ray standpoint, the patient's personal opinion of the results was as follows:

FIGURE 6

Group I	6	Cured
Group II	18	Better
Group III	3	Slightly improved
Group IV	1	No change
Group V	2	Worse
No reply	3	

Here, again, we believe it is apparent that the good results obtained in the great majority of cases are directly related to obtaining firm bony fusion in the area operated on for spinal fusion.

Much has been written about the advisability for spinal fusion in cases with clinical evidence of a herniated nucleus pulposus. In this series of forty-four cases there were eight patients who had exploration for a herniated disc which was followed by a spinal fusion operation (combined operation). In two of these eight cases the exploration was negative for evidence of a herniated disc. In the remaining six cases a herniated disc was found and removed. The end results obtained in these eight cases we felt were of interest. Fortunately, in all eight of these cases there was clinical and X-ray evidence of firm bony fusion of the operative area. In the two cases in which there was a negative exploration for a herniated disc both patients classed their end results as Group II (improved) which we feel is a satisfactory result. The remaining six cases, in which a herniated disc was found at operation, the end-results as classified by the patient were as follows:

Group I	1	Cured
Group II	3	Better
Group III	2	Slightly improved

We feel the results of the combined operations are satisfactory in that the purpose for which the operation was done, namely, relief of low back pain was accomplished and all patients were clinically improved.

SITES AT WHICH PSEUDO-ARTHROSIS OCCURRED

It is a recognized fact that the longer the area of spinal fusion, the greater is the possibility of occurrence of pseudo-arthrosis. Only five cases in this group of forty-four had an operative area of fusion greater than two vertebrae (not including the distal portion of the fusion area to the sacrum). The sites of pseudo-arthrosis occurring in the eleven patients in this group as determined by flexion and extension and right and left lateral bending X-rays are as follows:

Between L-5 and S-1	5
Between L-4 and L-5	5
Between L-3 and L-4	1

It would be unreasonable to expect every case operated on for a spinal fusion to obtain a solid fusion and a perfect result. However, considerable food for thought is provided when it is realized that, in this series of cases, all of whom had relatively the same operative technique and almost identical post-operative care, one out of every four failed to obtain the purpose for which the operation was undertaken.

DISCUSSION

It is to be emphasized that the only indication for operation in this group of patients was low back pain which could not be controlled by conservative measures. Prior to beginning this study, we were under the definite impression that the large majority of patients on whom operations of spinal fusions had been done at this hospital had been cured of their low back pain. This impression was probably brought about by the fact that we were seeing only the good results for follow-up. The poor or unsatisfactory results, had failed to return for check up or had wandered elsewhere in search of relief for their back pain. We honestly believe that from a standpoint of selection of patients, and pre-and post-operative care, ideal conditions exist at this hospital for treatment of cases requiring spinal fusion. Under the present policies of the Veterans Administration,

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patients may be hospitalized for as long as considered necessary by the Ward Doctors and there is no restriction on expenditures for length of hospitalization, X-rays, braces, etc. The operations were carefully done under the direct supervision in every instance of an experienced Board Diplomate Orthopedist. Supplemental bone from the Bone Bank for full coverage of the fusion area was available. The patients remained in the hospital under direct supervision during their entire post-operative immoblization period. Under such ideal conditions, it is reasonable to assume that almost every patient would be definitely benefited. From a careful analysis of the results obtained, however, it is obvious that only 70% of these patients were better off after operation than they were before and in 25% of the patients, the purpose of the operation, namely arthrodesis of the operative area, was not accomplished. These results, we feel, are comparable to other reported results under similar conditions. We are forced to conclude that even with ideal conditions available for pre-operative selection and post-operative care of these patients, that arthrodesis of the lower spine will not be obtained in one out of four cases. The good results obtained in this small group of cases are definitely related to occurrence of a sound bony fusion of the operative area and the poor results to the occurrence of pseudo-arthrosis.

SUMMARY

(1) The end-results of operation for spinal fusion in forty-four cases are reported.

(2) These cases were treated in a Veterans Administration Hospital under ideal conditions for selection of patients and pre- and post-operative care, and with no restrictions on length of hospital stay, type of treatment, etc.

(3) The good results obtained are usually directly related to the occurrence of firm bony fusion of the operative area and the poor results are almost always directly related to the occurrence of pseudo-arthrosis.

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TV May Revolutionize Medical Education.

The growing use of television in the nation's medical schools is prophetic of a virtual revolution in medical teaching methods which may take place during the next ten years.

Dr. David S. Ruhe, director of the Medical Audio-Visual Institute, writing in the January issue of *The Journal of Medical Education*, looks ahead to a time when medical schools will be linked in a TV network and when all medical students may have visual contact with the greatest medical minds of our time.

Most medical schools questioned in a recent survey by the Medical Audio-Visual Institute indicated that they were making experimental use of television and that facilities for expansion of the program are being included in new building plans. Many schools sponsor health education programs to the public over regular TV channels.

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THE TREATMENT OF CORONARY ARTERY DISEASE*

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All phases of coronary artery disease are based on sclerotic narrowing of the coronary arteries. The symptoms caused by a lack of blood supply to the heart itself, depend on the degree of coronary insufficiency. In fact, angina pectoris is considered a symptom complex rather than a definite pathologic entity. Occasionally post-mortem investigation has not demonstrated any involvement of the coronary vessels and yet the patient has succumbed from an attack of angina pectoris.

The individual reaction to impaired coronary circulation depends a great deal upon the sensitivity of the patient and the amount of coronary artery disease. All of us have seen individuals with very severe coronary disease who have been able to lead useful lives without any cardiac symptoms, mainly because of their adequate cardiac reserve. Under the circumstances, treatment must be selective and possibly different for each individual case.

We have stated that angina pectoris is a symptom complex. The patient may complain of a sense of fatigue, suffocation, or oppression in the chest, without having severe pain, but the classical type of discomfort is a constricting, substernal pain, lasting for several moments, usually occurring on exertion and radiating to the arms, neck, teeth, and even the back. Discomfort may occur on the least exertion, such as dressing, after awakening, or even shaving. Occasionally the patient has to exert himself to an extreme to cause any chest discomfort. The diagnosis at times may be very difficult, as certain conditions such as hypertrophic arthritis of the spine, gallbladder disease, dissecting aneurysm, and hiatal hernia, may simulate angina pectoris. Electrocardiograms and examination may not be very helpful, but given an individual in the older age group who develops chest discomfort on exertion, relieved by rest, one may assume that the patient has coronary artery disease.

The treatment of angina pectoris is based on simple broad principles.

1. Physical Activity. The patient with established angina of effort does not require rest in bed. In fact, moderate exercise, such as leisurely walking on a level footing, may be beneficial, because it may promote the development of a collateral circulation. The patient usually knows how far he can walk before angina occurs. He should be instructed to rest for a few moments before he proceeds farther. He should never continue activity while having an anginal attack. If a prolonged attack occurs, lasting as much as a half hour, it might be necessary for the patient to be placed at bed rest for several days, in order to rule out the possibility of acute coronary insufficiency or even a coronary thrombosis. These same principles apply to a patient when angina of effort becomes so severe that he starts having angina at rest (angina decubitus), but he should even restrict his activities more, to the point of being a complete bed patient, until he shows improvement. It may be necessary, if the patient is of a highly nervous temperament or in a strenuous occupation, that retirement from business or a change of occupation be advisable.

2. Psychotherapy and Living Routine. Everyone becomes emotionally upset when told he has a heart condition. This is even more true of physicians than of laymen, so it is most important that the problem be approached in a calm manner. The patient should understand that he will be allowed certain activities and that most of the time he will be able to lead a fairly normal existence if he follows the proper instructions. Certainly, necessary adjustments in his home life will be required. We are inclined to limit smoking or even restrict it completely, but do allow an occasional alcoholic drink. Temperance in eating is important and relaxation in a chair after meals is advised. Sometimes a day or two in bed each month may be helpful. Sexual intercourse is allowed but any excesses are condemned. The physician must understand the patient's routine and mode of living, as at times his advice cannot be followed. For example, telling a laborer that he should discontinue working may be the final insult and produce a myocardial infarction.

3. Nitroglycerin. In 1867, Dr. I. L. Brunton[1]

*Presented at the twenty-second St. Philip Hospital Seminar, July 18, 1952.

described the effect of amyl nitrite on a patient with anginal attacks. Later, in 1872, Dr. W. H. Madden[2] gave a report of his personal experience with amyl nitrite. He stated, and I quote, "the presence of intense pain is not conducive to the exercise of calm, philosophic analyses and I can only tell you what I felt, that the effect was truly wonderful." Sir Thomas Lewis, in 1933, observed that the relief of pain by the use of nitrites was due to increased blood flow. Since that time there have been innumerable nitrite preparations used for the treatment of angina pectoris. None are better than nitroglycerin. Unfortunately, most physicians use nitroglycerin as a treatment for an attack. We suggest that the drug should be used to prevent an attack. In addition, the average physician uses either 1/100 or 1/150 grain. This dosage frequently causes excruciating headache and the patient is so unhappy with the headache that he would rather suffer the anginal pain. In the past two years we have suggested that our patients take 1/400 gr. under the tongue, three times a day regularly, and if they have a severe attack they take an additional dose. Usually this method prevents many attacks, but of course occasionally the patient continues to have pain, requiring larger dosages. In the past three years we have become very interested in an Egyptian drug which is obtained from the seeds of Ammi visnaga. This product is officially named visammin and the trade name is Khellin. Khellin has been used as a potent vasodilator for at least twenty years. When we started using this drug the original investigators, led by Anrep, Kenawy, and Barsoum,[3] suggested a dosage of 100 to 200 mgm. a day. We found that the patient could hardly stand 40 mgm. a day and since then Conn *et al.*[4] have suggested that the patient start on 20 mgm. twice a day, and finally reach a level which the patient can tolerate without the disastrous gastro-intestinal effect from overdosage. We have been extremely interested in the parenteral administration of Khellin and have found that 50 mgm. intramuscularly every day may relieve many patients with severe angina who have not been helped by nitroglycerin. Later the drug may be given once a week by injection. This treatment has been recommended by Kleiber.[5] We have also been stimulated by the observations of Gilbert and Nalefski[6] on the effect of anticoagulants in increasing the coronary blood flow. These investigators, using dogs, have suggested that anticoagulants benefit coronary thrombosis and angina pectoris because they increase the coronary blood flow rather than their anticoagulant action. We recently treated two cases of severe status anginosis by giving Heparin, 100 mgm. intravenously every other day. Both of these cases responded beautifully and prior to the injections were using 10 to 15 nitroglycerin tablets a day. During the period of taking the injections and afterwards they were able to discontinue nitroglycerine. These two cases do not prove that Heparin has any real value in the treatment of angina pectoris but certainly have stimulated us to continue looking for other methods of therapy in handling severe cases. Russek,[7] in his studies on 13 cases, has not been able to substantiate our findings.

Xanthines. In 1895, Askanazy,[8] reported improvement in cardiac asthma and angina pectoris with administration of theobromine sodio-salicylate. This work was confirmed by Brewer,[9] in 1902, it being considered that the xanthines had a direct vasodilator effect on the coronary arteries, probably directly on the walls of the blood vessels. Since then, many investigators have studied the xanthines and there has been a great deal of discussion as to their merits. Gilbert[10] has been very much impressed with their usefulness, while Gold[11] feels that they have no value except when used intravenously for bronchial asthma. We believe that in severe angina pectoris or coronary insufficiency it might be wise to use aminophyllin, 4 grs. intravenously or intramuscularly, every four hours for several doses, later placing the patient on Theocalcin orally, 7.5 grs. three times a day.

Coronary thrombosis with myocardial infarction presents an entirely different problem than angina pectoris, although it is not unusual for both to be present in the same case. It is interesting to note that if a patient who has been suffering with angina pectoris develops a coronary thrombosis, very often the angina pectoris disappears. After an acute coronary thrombosis the treatment for the acute attack is of an emergency nature. In the uncomplicated case that has not developed acute heart failure, the patient is placed at *bed rest* for several days. In recent years we have become much more lenient as far as allowing the patient to get out of bed. This has been brought about by the efforts of Dr. Sam Levine,[12] who recently discussed the arm-chair treatment of coronary thrombosis. He has suggested

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that the patient be allowed to sit on the side of the bed in a chair as early as twenty-four hours following an attack. This seems a little fast to us, but we do let the patient use a bedside commode and sit in a chair after several days, preferably a week. The patient is not allowed to walk or go to the bathroom and this chair existence is continued for practically the same period of time, usually four to six weeks, as in the older method of treatment. This bedside treatment is not advocated for an individual who starts his attack by going into shock and may be unsatisfactory if one requires oxygen.

Oxygen is usually started on all acute coronary thrombosis cases. We prefer the oxygen tent and regulate the flow of oxygen at the rate of twelve to fifteen liters per minute. If a tent is not available, we use nasal oxygen at six to eight liters per minute. Some clinicians prefer the hood or the oxygen mask on account of the higher concentration of oxygen but the patient is usually much more uncomfortable in the hood or mask rather than in the tent or using the nasal tube.

At the onset of an acute coronary episode one must attempt to eliminate pain and at times it is necessary to use large doses of morphine or Demerol. We suggest 1/4 gr. morphine or 100 mgm. Demerol, and if necessary this may be repeated within fifteen to thirty minutes. The Demerol is given intramuscularly but the Morphine may be given in the vein. At times these strong narcotics must be continued for several days. Very often they cause much nausea and vomiting. This is unavoidable. Later, when the patient has improved, we find that relaxation may be obtained by the use of moderate doses of barbiturates. It is important that the patient sleep and for several weeks we may give 1.5 gr. Seconal or Nembutal at bedtime. Occasionally barbiturates excite the patient; then we try bromides or chloral hydrate, which may be very effective in 20 gr. doses given in fruit juice.

The xanthines may be very helpful at the onset of an acute coronary thrombosis. They are then given as in acute coronary insufficiency. We prefer Aminophyllin, 4 grs., intravenously or intramuscularly but the morphine may be given in the vein. At tinue with one of the oral preparations, such as Theocalcin.

It has been known for many years that there is marked reflex vasoconstriction in other coronary vessels at the time of an acute coronary thrombosis. Manning, McEachern and Hall[13] have shown that these vasoconstrictor reactions may be prevented by vagal section or the use of atropine in the experimental animal. The increase in coronary blood flow after the administration of atropine reduced the mortality in dogs 34%, so most observers following these experimental studies suggest the use of atropine after an acute coronary thrombosis; thus, it is probably a good idea to give the patient 1/150 gr. of atropine every four hours for several doses.

Frequently the patient is in severe shock after the onset of coronary thrombosis. This may result in temporary renal shut-down. Although some investigators feel that the patient's life may be jeopardized by parenteral fluids, we have seen several remarkable recoveries by judicious use of small infusions, 250 to 500 cc. of 10% glucose, but prefer 250 cc. of plasma or whole blood if they are available. It may be necessary to repeat the infusions during the critical period of shock. We know of one instance in which a very prominent physician was saved by giving him several transfusions up to 1000 cc. of whole blood during the shock period. We are positive that he would have succumbed if this had not been done. It is not considered wise to use parenteral fluids on the milder cases of coronary thrombosis or those that are not in shock, but a patient in shock is in very critical condition and one must use every device in his power to prevent the patient's death.

It is no longer considered good practice to give digitalis in the treatment of coronary thrombosis with myocardial infarction unless there is definite evidence of congestive heart failure; then it should be given and the patient fully digitalized. We do not believe in rapid digitalization unless the patient is critically ill with pulmonary edema and uncontrolled auricular fibrillation. Gradual digitalization over a period of several days would be the accepted procedure. Quinidine has many advocates as a routine drug in acute coronary thrombosis. We have never been impressed with the arguments in its favor suggesting that it might prevent ventricular tachycardia. If the patient is having frequent extrasystoles, then Quinidine should be used in a dosage of 3 grs. every four hours. If ventricular tachycardia occurs then Quinidine must be used in much larger amounts,

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otherwise the patient may succumb. We have given as much as 0.6 gram every two hours for twenty-four or forty-eight hours, but have never given as much as 1 gram at a dose, which has been suggested by some observers. Pronestyl (procaine amide) may be very efficacious in the abolition of ventricular tachycardia. It should be given intravenously, starting with 0.5 gram slowly; later this dose may be repeated. At times one must give up to 2 grams over a period of twenty-four hours to terminate an attack of ventricular tachycardia. This drug may also be used by mouth but is not as effective by this route.

The use of anticoagulants in the treatment of acute coronary thrombosis is now firmly established. Unfortunately there is no simple laboratory technique to enable us to use these drugs with ease. When Heparin is given, clotting time must be frequently performed, and if one uses Dicumarol or Tromexan, daily prothrombin times must be obtained. If adequate laboratory facilities are not available, we advise that you do not use the anticoagulants as they may be quite dangerous without proper control. In acute coronary thrombosis the proper method is to give Heparin, 50 mgm. intravenously, and repeat it after four hours. In the meanwhile, a prothrombin time has been obtained and Dicumarol in dosages ranging from 100 to 300 mgm. is given according to the prothrombin time. We like to keep our patients at a level of 20% to 30% concentration. At times, at the onset of the acute attack, the prothrombin time may be prolonged and the concentration be down even before the first dose of anticoagulant; therefore, it would be dangerous to give the larger dose unless the exact concentration has been determined; 300 mgm. Dicumarol is given if there is 100% concentration, 100 to 200 mgm. with concentrations above 30%, and 25 to 50 mgm. with concentrations between 20% and 30%; under 20% no anticoagulant should be given. This schedule also is advised if Tromexan is given. This is another cumarin derivative and is supposed to be safer than Dicumarol, because it is absorbed more rapidly and the maximum effect takes place thirty hours after a single oral dose. The duration of effect disappears in forty-eight to sixty hours, while Dicumarol remains in the system much longer. It must be given in larger doses and usually one starts with 1200 to 1500 mgm. the first day, 900 mgm. the second day, and from 450 to 750 mgm. daily thereafter. A daily prothrombin time must be performed while on Tromexan. One attempts to maintain a level of two to two and one-half times the control reading of sixteen to eighteen seconds or a percentage concentration of 20% to 30%.

The danger of hemorrhage is always a factor when using anticoagulants, so a constant check of any bleeding tendency or hematuria is necessary. Anticoagulants are contraindicated in blood dyscrasias, severe liver damage, or ulcerative visceral lesions. If hemorrhage does occur, the drugs are immediately stopped, intravenous injections of 72 mgm. of vitamin K are given, which may be repeated in four hours; whole blood transfusions may be required. In spite of the best laboratory technique there may be wide fluctuations in prothrombin determination, requiring constant vigilance by the attending physician in order to keep the prothrombin time at its proper level. There are some investigators who condemn anticoagulants because of the difficulty in their administration, but in the modern treatment of acute coronary thrombosis with proper laboratory facilities the drugs should be given.

In the past few years most of the research in coronary disease has been in the field of cholesterol metabolism. There are many conflicting opinions concerning the position of cholesterol as regards the pathogenesis of coronary arteriosclerosis. The work of Gofman[14] and his associates on separating the cholesterol molecule has stimulated many investigations of this particular problem. He is convinced that the Sf 10-20 molecule is the important cholesterol factor causing coronary arteriosclerosis. Keys[15] does not agree completely with these ideas and believes the entire cholesterol molecule is responsible for coronary artery disease, rather than any particular size molecule. But, in attempting to take a conservative attitude to the entire problem, we have become convinced that excessive cholesterol ingestion is not good for our coronary patients. Certainly a low-fat diet should be advocated. A low-cholesterol diet is not very palatable, but if the patient is cooperative it can be followed without too much trouble. There is some question as to the value of lipotropic substances preventing and absorbing atherosclerosis in the experimental animal, so Morrison[16] and his associates have suggested the combination of a low-

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cholesterol diet and lipotropic drugs, such as choline, inositol or methionine as a long range treatment of coronary artery disease. We have followed these ideas but it is most difficult to evaluate a dietary regimen on coronary arteriosclerosis. Possibly this entire problem will be clarified in the next few years.

In summary, it is impossible to cover the entire field of treatment in this short period. The broad principles of treatment have been indicated with some of the more modern therapeutic ideas. We hope that eventually there will be some method of preventing coronary atherosclerosis, or at least retard its development; then less treatment will be required.

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Describe Three New Insulin Preparations.

Three new long-acting insulin preparations, which offer promise in reducing the complexities of insulin administration to diabetics, were described in the December 27 J.A.M.A. The new preparations, consisting of insulin mixed with small amounts of zinc, have activity ranges from about 18 to more than 30 hours, according to K. Hallas-Moller, Ph.D.; M. Jersild, M.D.; K. Peterson, M.Sc., and J. Schlichtkrull, M.Sc., of Copenhagen, Denmark.

According to the authors, preliminary studies of 65 patients with severe cases of diabetes have shown "that satisfactory blood sugar control can be obtained in such patients with a single injection of the appropriate one of the three types of zinc insulin."

They reported that the currently available insulin preparations with protracted action, if given in one daily injection, are incapable of providing satisfactory regulation of the blood sugar level in a considerable number of patients with difficult cases of diabetes.

"The results we have attained indicate that these zinc insulin preparations may offer a solution to the problem of providing a single daily injection for such patients."

Zinc insulin was given to the patients daily at 8 a.m. The amounts of insulin varied according to individual reactions to the drug.

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Medical Society of Virginia Cancer Committee

Chairman, George Cooper, Jr., M. D.

Albemarle Hotel Building, Charlottesville, Va.

Reprints of this and preceding Bulletins may be obtained from this office

February 1, 1953

Case Reports

A 49 year old man, complaining of persistent indigestion, was found on x-ray examination to have a gastric ulcer high on the lesser curvature. As the x-ray appearance was in favor of a benign lesion, he received medical treatment for two weeks. A check examination showed that the ulcer had partly healed, and the patient was asymptomatic. He was told to return for a second check-up in another two weeks, but he felt so well that he simply continued his prescribed regime and did not return until his symptoms recurred six months later. X-ray examination then showed an ulcer crater considerably larger than at original examination, and surrounded by irregular nodulation. At exploration, a carcinoma was found. The lesion was resectable but one of the regional nodes contained metastasis.

A 57 year old man, complaining of persistent indigestion, was found on x-ray examination to have a prepyloric gastric ulcer on the lesser curvature. Its appearance was that of a benign lesion, and he too received medical treatment for two weeks. Check examination of this patient also showed partial healing of the ulcer, and symptoms had disappeared. But the prepyloric location was alarming, and the decision was to do a gastric resection because of the incomplete healing. Pathological examination proved the lesion to be only a benign ulcer.

Comments: Since the roentgen appearance alone does not serve to distinguish absolutely between the benign and malignant, the question of whether or not to resect a benign-appearing gastric ulcer is one of the most troublesome physicians must face. However, current teaching is that gastric ulcer is a surgical problem, requiring exploration for diagnosis as a minimum procedure except when a benign lesion can safely be diagnosed. This requires a roentgen impression that the ulcer is benign, and the demonstration of healing.

Sara M. Jordan of the Lahey Clinic sets up the following criteria for healing, (1) the complete subsidence of symptoms, (2) the complete disappearance of occult blood from the stools, if this has been present, and (3) the complete disappearance of the roentgen ray abnormalities and of the ulcer when demonstrated by gastroscopy. These criteria must be fulfilled within a limited period of trial medical management, preferably in a hospital. Various authorities set different limits to the trial period, but four weeks would seem to be about the maximum time allowable.

Because distress due to an ulcer in a carcinoma may be temporarily relieved by medical treatment, the subsidence of symptoms does not differentiate between the benign and the malignant, but failure of symptomatic relief does indicate that the ulcer has failed to heal and therefore requires surgical treatment.

In addition to disappearance of the crater, as demonstrated radiologically, when rigidity of the gastric wall has been noted by the fluoroscopist, a return of flexibility must be observed before an intramural carcinoma can be ruled out.

In spite of the most careful selection, some resections will be done for lesions that prove benign and that might have healed if medical treatment had been continued a little longer. But some possibly unnecessary surgery will have to be accepted as wise treatment until means can be found to make the preoperative diagnosis of gastric malignancy more accurate. The development of methods of obtaining material from the stomach for cytological study promises a worth-while contribution. And, fortunately, exploration and surgical treatment of a benign lesion is now extremely safe.

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Serious attention to indigestion persisting more than one week, refinement of diagnostic techniques and extension of surgical techniques plus a willingness to resort to prompt surgery for suspicious gastric lesions of all sorts, including ulcers, is doing more to meet the challenge of cancer of the stomach than we sometimes realize. For instance, comparing the periods 1907-16 and 1940-49, Walters and Berkson found that in patients receiving a diagnosis of gastric malignancy at the Mayo Clinic, the percentage of resectable lesions had doubled (rising from 22% to 44%) and the percentage of five-year survivals had almost trebled (from 5% to 14%). W. A. Cooper, comparing the periods 1932-40 and 1940-51, found that the three-year survival rate in gastric malignancies seen at New York Hospital had nearly trebled (from 5.7% to 14.6%) and that the five-year survival rate had risen from 4.9% to 8.5%.

That is indeed good news in a field of medicine where encouragement is sorely needed.

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A SEROLOGIC STUDY OF SERUM FROM SUSPECTED CASES OF INFECTIOUS MONONUCLEOSIS

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Infectious mononucleosis is a disease of unknown etiology, characterized by fever, chills, sore throat with or without membrane, enlarged lymph nodes and spleen. Due to its protean manifestations and similar hematologic changes the syndrome has been mistaken for diphtheria, meningitis, typhoid, whooping cough, appendicitis, leukemia and several rash producing diseases, such as typhus, scarlet fever, measles and secondary syphilis. Several bacteria have been suggested as causing the disease, but experiments have failed to produce acceptable proof. A filterable virus is now considered to be the possible etiologic agent since monkeys inoculated with blood from patients with infectious mononucleosis developed similar blood pictures. Davidsohn states that "successful transmissions of the disease from monkey to man, from man to monkey, and from man to man have been reported but require confirmation."

The advent of the Paul-Bunnell agglutination test in 1932 and Davidsohn's[1] differential test reported in 1935 has enabled the laboratory to render more effectual assistance to doctors in diagnosing infectious mononucleosis. Paul and Bunnell observed that the blood serum of patients with infectious mononucleosis would agglutinate sheep erythrocytes. Davidsohn found that a suspension of guinea pig kidney would remove both normal agglutinins for sheep cells and antisheep agglutinins in the serum of patients with serum disease but would not remove sheep cell agglutinins found in the serum of patients with infectious mononucleosis.

Blood examinations for heterophile antibodies has been made a general procedure in the laboratory of the Virginia Health Department since January, 1951. Previously the test was only conducted when requested by a physician submitting the specimen. All blood specimens received in the laboratory for agglutination tests for febrile diseases are also tested for heterophile agglutinins. The procedure employed is a presumptive slide agglutination test, a rapid method developed by F. Rappaport and M. Skariton[2]. The technic employs one drop or 0.05 cc. of clear serum (fresh or inactivated) to which is added one loopful (5 mm. in diameter) of washed packed sheep red blood cells. The two components are mixed thoroughly and read at once. Failure of the patient's serum to agglutinate the sheep cells is considered a negative test. Immediate clumping of the cells constitutes a positive reaction. Specimens that are negative by this method are reported without further delay. Specimens that give positive reactions are subsequently tested by a macroscopic tube test. Adsorption tests are conducted on serum with guinea pig kidney and boiled beef erythrocytes to differentiate between heterophile antibodies of infectious mononucleosis, antibodies formed by a previous therapeutic injection of horse serum and normal agglutinins. After the serum has been adsorbed, centrifuged and decanted, serial dilutions in 0.9% saline are prepared and a tube agglutination test performed. Washed sheep red blood cells in a one per cent suspension is added to each tube. The tubes are shaken and incubated in a 37° C. waterbath for two hours. Immediately after the incubation period the rack is shaken vigorously and the titre observed without removing tubes from rack. Agglutinins for sheep erythrocytes in normal serum are adsorbed with guinea pig kidney antigen but not with boiled beef erythrocytes. No agglutination is obtained with serum from a patient with serum sickness caused by previous injections of horse serum because the agglutinins for sheep erythrocytes are adsorbed by both guinea pig kidney and boiled beef erythrocytes. Agglutination resulting from serum adsorbed with guinea pig kidney antigen and the absence of agglutination with the same serum adsorbed with boiled beef erythrocytes is indicative of infectious mononucleosis. Tests conducted with adsorbed serum are considered highly specific; therefore, the titre is not significant so far as the disease is concerned, but may serve as an index to the patient's antibody response.

Literature on infectious mononucleosis records that serum containing heterophile antibodies will

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elicit false positive reactions in syphilis serology. Davidsohn[1] states that "occasional positive results have been observed usually only transient and disappearing after a few weeks." Kolmer[3] thinks about 20% of the cases of infectious mononucleosis will produce transitory positive reactions in syphilis serology.

AGGLUTININS

FOR SHEEP ERYTHROCYTES IN HUMAN SERUM

AGGLUTININS ADSORBED BY	TYPE OF SERUM		
	INFECTIOUS MONONUCLEOSIS	SERUM SICKNESS	NORMAL SERUM
GUINEA PIG KIDNEY ANTIGEN	NOT ADSORBED (Agglutination of sheep cells)	ADSORBED (No agglutination of sheep cells)	ADSORBED (No agglutination of sheep cells)
BOILED BEEF CELL ANTIGEN	ADSORBED (No agglutination of sheep cells)	ADSORBED (No agglutination of sheep cells)	NOT ADSORBED (Agglutination of sheep cells)

The laboratory of the Virginia Health Department conducts serologic tests for evidence of syphilis on all specimens showing heterophile agglutinins. We have observed that approximately 12% of the sera react to the Kolmer complement fixation test and 6% to the V.D.R.L. slide test. These figures represent a little more than half the number conceded by other workers to yield positive syphilis serology. Histories received in a public health laboratory concerning patients are rather meager and we have no way of knowing whether a patient eliciting positive syphilis serology is a syphilitic or not. Occasionally we are fortunate enough to receive a second specimen of blood from a patient from whom a positive heterophile and positive syphilis serology tests were obtained. Repeat tests on this type of specimens usually have yielded negative results in syphilis serology, although the heterophile titre has remained the same or was elevated.

Results of blood tests from four cases of particular interest are as follows: A heterophile titre of 1:40 with adsorbed serum of patient "A" yielded a 4+ Kolmer reaction. The V.D.R.L. slide test was positive in a dilution of 1:10. In this instance the sheep cells were partially agglutinated in the Kolmer test. A portion of the serum was then adsorbed to remove the sheep cell agglutinins and another Kolmer test performed. A 4+ reaction was observed and there was no clumping of sheep cells. Five days later a second specimen from patient "A" elicited a heterophile titre of 1:160 and the syphilis serology was negative.

A titre of 1:640 for heterophile antibodies was observed with the serum from patient "B". The Kolmer complement fixation and V.D.R.L. slide tests were both positive. Four days later a second specimen from patient "B" was still positive for heterophile agglutinins in a dilution of 1:640 with negative syphilis serology.

A blood specimen from a young college student, patient "C", was positive for heterophile antibodies in a titre of 1:160. Two flocculation tests were negative but the Kolmer complement fixation was strongly positive. Nine days later the heterophile titre had risen to 1:320 while all three tests for syphilis were negative.

Patient "D" was admitted to a hospital in a state of convulsions with high temperature and sore throat. Agglutination tests for heterophile antibodies were

positive in a dilution of 1:640. Two flocculation tests for syphilis and the Kolmer complement fixation test were positive. Three days later the heterophile titre for infectious mononucleosis was still 1:640. The flocculation tests were weakly positive but the Kolmer was negative.

The above cases, although few in number, are an index of the transitory or temporarily false positive reactions observed in syphilis serology.

Blood specimens received in the State Laboratory containing heterophile antibodies for infectious mononucleosis have not elicited as many positive reactions in syphilis serology as literature on the subject has led one to believe might be observed. The use of cardiolipin-lecithin antigen for serum tests for syphilis might be the answer. This antigen is a highly purified product and is used exclusively in the State Laboratory in syphilis serology with one exception, the Kahn test. The subject is a moot point and it is hoped that more investigative work will be done in the future.

CONCLUSION:

A presumptive and differential agglutination test for infectious mononucleosis has been included in the general procedure of blood examinations for febrile diseases in the Virginia Health Department.

Specimens positive by the presumptive test are further tested by Davidsohn's differential macroscopic tube test.

Adsorption of serum with guinea pig kidney antigen and boiled beef erythrocytes will differentiate between heterophile antibodies of infectious mononucleosis, normal antibodies and agglutinins formed by recent injections of horse serum.

Blood specimens from cases of infectious mononucleosis are conceded to elicit false positive reactions in syphilis serology. The percentage of nonspecific reactions observed in the State Laboratory has been about half the number reported by other workers.

Cardiolipin-lecithin antigens used in the two general serologic test procedures may be the cause of the smaller number of false positive reactions.

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New Books

The following are some of the newer books at the Tompkins-McCaw Library of the Medical College of Virginia, Richmond 19, which may be borrowed by our readers under usual library rules:

AAAS—Soviet science. 1952.
Bierman & Licht—Physical medicine in general practice, 3rd ed. 1952.
Bowlby—Maternal care and mental health, 1951.
Craiz & Faust—Clinical parasitology, 5th ed., 1951.
Davidson—Forensic psychiatry. 1952.
Duncan—Diseases of metabolism, 3rd ed. 1952.
Freud—Dictionary of psychoanalysis, 1950.
Friedenwald et al—Ophthalmic pathology, 1952.
Joslin—Treatment of diabetes mellitus, 9th ed. 1952.
McDonald & Chusid—Correlative neuroanatomy & functional neurology, 6th ed. 1952.
Moore & Ball—The metabolic response to surgery. 1952.
Rifkin, Leiter, & Berkman—Diabetic glomerulos cherosis. 1952.
Rundle—Joll's diseases of the thyroid gland, 1951. 2nd ed.
Segal—The management of the patient with severe bronchial asthma. 1950.
Willis & Cummings—Diagnostic & experimental methods in tuberculosis. 2nd ed. 1952.

XUM

A STUDY OF INTESTINAL PARASITES AT WESTERN STATE HOSPITAL

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and
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It was noted on differential blood counts of patients within the institution, and newly admitted patients as well, that a relatively large group had eosinophil counts of five per cent or more. It was assumed this increase was due mainly to intestinal parasites. We proceeded to test this assumption in the study which follows.

A patient sample (253 or 10% of the hospital population) was organized into three groups. Group A was composed of 72 newly admitted alcoholic and mentally ill patients without reference to sex, age, or community from which they came. Group B was composed of 27 patients who had resided in the hospital for many years, and who where able to carry out the ordinary provisions of hygienic living. Group C was composed of 154 male and female patients. They, too, had been in the hospital for many years but had been untidy and unable to observe hygienic measures. A fourth group, Group D, composed of 12 members of the hospital personnel, were also examined, thus increasing the total to 265. All persons with known or suspected allergic conditions were omitted from these groups.

Method: Red and white blood cells were counted in the usual way in a Neubauer hemocytometer. Differentials were made on thin smears, using Wright's stain. A Hellige-Diller photoelectric colorimeter was used to determine the amount of hemoglobin. With this method, the 100% standard for males is 15.5 grams and 14.2 grams for females. Stools were examined by concentrating the ova, using the Zinc Flotation Method.[1] One or as many as three stools from each individual were examined. This was the only method used to detect the ova. With Ancylostoma duodenale and Enterobius vermicularis, more complete results may have been obtained with more accurate methods.

*Fourth year students from the University of Virginia Medical School who worked during the summer of 1951 under the direction of Western State Hospital Staff.

†Chief Psychologist, Western State Hospital.

Results of the stool examinations: The overall results of the stool examinations showed that 170 of the 265 individuals (64.1%) in the study were infested. Single infestations occurred 107 times, double 50, and triple infestations 13 (Table I). Ascaris lumbricoides was the most frequent infestation. It was followed, in descending order of frequency, by Trichuris trichiura, Enterbius vermicularis, and Necator americanus (Table II).

Group A (newly admitted), Group B (tidy, chronically ill), and Group D (hospital personnel) were infested at similar percentage rates, and species of worms. (Group A 38.8%, Group B 40.7%, and Group D 41.7%. See Tables I and II). Group B had a higher rate of double infestations, which may be accounted for by the natural history of certain psychotic states. Some patients regress to such an untidy state they become coprophagic and must, of necessity, be placed with similarly regressed patients. In this environment, as will be seen below, double infestations were common. After a period of time in this environment, partial remission of the illness permits a change to more hygienic living conditions.

Group C (untidy) had the highest incidence of infestation. Among 154 patients, 100 were infested with Ascaris lumbricoides, 65 with Trichuris trichiura, 25 with Enterobius vermicularis, and 4 with Necator americanus. Only 18.2% (or 28 patients) showed no infestation and multiple infestations, evident from the above figures, were frequent. (See Tables I and II). This unusual increase in rate of infestation is believed to be directly related to the regressed condition of these patients.

Correlations between infestation and eosinophil counts: Ninety-five individuals without ova in their stools had a mean eosinophil count of 1.87%. This is well below the usually accepted maximum normal count of 4%. One hundred and seven individuals with single infestations had a mean eosinophil count of 4.09%. Fifty individuals with double infestations had a mean eosinophil count of 7.47%, while

thirteen individuals with triple infestations had a mean count of 10.09%.

These findings were compared percentage-wise against the usually accepted maximum normal eosinophilia of 4%. It was found, as the number of species of infestations increase, there was a parallel increase in the number of cases showing an eosinophilia above 4%. This parallel was indicated in the following way: With no ova in the stool, only 15% had an increase in eosinophils. It is possible this 15% might have been reduced by uncovering the presence of ova in the stools or duodenum of some of these individuals. With one species of ova, the percentage increased to 30%, with double infestation to 55%, and with triple infestations to 85%. The species of infestations were considered in this same frame of reference, and we found with Ascaris lumbricoides alone in the stool, 30% showed an increase above 4%, with Trichuris trichiura alone 40%, with Trichuris trichiura and Enterobius vermicularis 32%, with Ascaris lumbricoides and Trichuris trichiura 68%, and with Ascaris lumbricoides, Trichuris trichiura and Enterobius vermicularis 90% of the differential smears had an eosino-

TABLE I

	Group A Newly Admitted	*Group B* Chronically Ill but Tidy	*Group C* Chronically Ill (Untidy)	*Group D* Employees	*Totals*
Number in Sample	72 (100%)	27 (100%)	154 (100%)	12 (100%)	265
No infestation	44 (61.1%)	16 (59.3%)	28 (18.2%)	7 (58.3%)	95
Single	23 (31.9%)	8 (29.6%)	71 (46.2%)	5 (41.7%)	107
Double	5 (6.9%)	3 (11.1%)	42 (27.4%)	0 (0.0%)	50
Triple	0 (0.0%)	0 (0.0%)	13 (8.2%)	0 (0.0%)	13

TABLE II

Species of Infestation					
Ascaris lumbricoides	27	10	100	5	142
Trichuris trichiura	0	1	65	0	66
Enterobius vermicularis	2	3	25	0	30
Necator americanus	4	0	4	0	8
TOTALS	33	14	194	5	246

philia above 4%. These data indicated a high positive correlation between the incidence of infestation and the eosinophil percentages.

Statistical significance of eosinophil and white blood cell counts: It has been reported that an increase in eosinophils in the blood stream is at the expense of the neutrophil group. Our raw data suggested this finding was true, but an increase in mean WBC counts was an accompaniment of increased eosinophil counts. It was decided to apply a statistical analysis to our data.

For this purpose, two groups (I and II) were set up. Group I was based on 104 eosinophil counts of 0 to 4% with the accompanying lymphocyte, neutrophil and total white cell counts. Group II was based on 29 eosinophil counts of 9 to 24%. From this phase of the statistical procedure, it became obvious that the increased eosinophil percentage in Group II resulted in a decrease in both lymphocytes and neutrophil percentages and also that the white blood cell count of Group II was high. Through the further use of "T" scores, it was found that the increase in eosinophil percentage was mainly at the expense of neutrophils, and to a lesser degree, at the expense of the lymphocyte percentage. The increase in WBC is extremely significant, even though the mean value does not rise above a value usually considered "within normal limits". (See Tables III and IV).

Hemoglobin and Red Blood Cell Counts: The hemoglobin and red blood cell counts were dichotomized—those infested with parasites and those who were not infested. Differences in sex were not taken into account. The results showed there were no significant differences between mean grams of hemoglobin or between mean RBC count for the two groups. The infested group had a mean hemoglobin of 13.14 grams per 100 c.c. of blood and a mean red cell count of 4.36 million per cubic millimeter. For the non-infested group, the means were 13.87 grams hemoglobin per 100 c.c. and 4.39 million red cells per cubic millimeter.

DISCUSSION

Reports of infestations in Virginia in the recent literature are not frequent. The report of Garst and Bengtson (1948),[2] covering a 13 year period at Catawba Sanatorium, showed that 10 to 20 per cent of the incoming patients were infested. The four most common species, in order of frequency, were Ascaris lumbricoides, Trichuris trichiura, Necator americanus and Enterobius vermicularis. These species of infestation are quite similar to the species found in the present study. However, the percentage of patients infested, when compared with the newly admitted group (Group A), at Western State Hospital, is 2 to 4 times smaller. An earlier work by Habeeb (1944)[3] in a West Virginia tubercular sana-

TABLE III

The mean per cent and standard deviation of Eosinophils, Lymphocytes, Neutrophils and WBC for Groups I, II and combined Group I and II.

		Eosinophils		Lymphocytes		Neutrophils		White Blood Count	
GROUP	No.	Mean	Sigma	Mean	Sigma	Mean	Sigma	Mean	Sigma
I	104	1.71	1.45	35.05	8.46	63.14	9.12	7980	2230
II	29	14.51	4.34	30.26	12.48	54.94	12.08	9810	2290
I & II	133	4.51	2.40	34.01	9.48	61.35	9.69	8379	2243

TABLE IV

Difference between means for Groups I and II, Groups I and Combined I and II, and Groups II and Combined I and II.

GROUPS	Eosinophils	Lymphocytes	Neutrophils	White Blood Count
I and II	12.80***	4.79*	8.20***	1830***
I plus I and II	2.80***	1.04	1.79	399
II plus I and II	10.00***	3.75	6.41**	1431***

* Significant at the 5% level of confidence. (Significant)
** Significant at the 1% level of confidence. (Very significant)
***Significant at the .5% level of confidence. (Extremely significant)

torium indicated that only 4.4% of the newly admitted patients were infested. The frequency of types of infestation were quite different from the present study. In descending order of frequency, they were: Strongyloides sterocoralis, Necator americanus, Endamoeba coli, Ascaris lumbricoides, Trichuris trichiura and Hymenolepis nana.

In view of the high rate of infestation at Catawba and Western State Hospital, and the few studies made on intestinal parasites in Virginia within the recent past, it would be of interest if similar studies were made at other Virginia institutions.

CONCLUSIONS

It is felt the hypothesis on which this work was begun has been well substantiated by the data presented, to wit, parasitic infestations were the major reason for increased eosinophil counts found on routine blood examinations at Western State Hospital.

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Hormone Drugs Aid in Treating Type of Anemia.

Use of corticotropin (ACTH) and cortisone in combination with other forms of therapy has greatly improved the outlook of patients with acquired hemolytic anemia, it was reported in the December 20 J.A.M.A.

This disease, an anemia due to rapid destruction of red corpuscles, is sometimes fatal. The basic cause of the disorder is obscure; it has no particular age predilection, but seems to afflict more females than males.

"During the past two years, the treatment of acquired hemolytic anemia has been advanced considerably, owing to the introduction of corticotropin and cortisone," it was stated by Dr. Milton S. Sacks, Dr. Joseph B. Workman and Elsa F. Jahn, B.S., Baltimore. All are associated with the department of medicine, University of Maryland School of Medicine and the Baltimore Rh Laboratory.

They reported on a study of 19 persons afflicted with the disease who received the drugs in addition to other forms of treatment. Several of the patients had remissions following treatment with blood transfusions and the hormones, and no relapses occurred. Significant improvement was noted in many other cases, according to the authors, although removal of the spleen was required in some instances.

They stated "There is no doubt in our minds that, but for the availability of this form of treatment, some of these patients would be dead."

XUM

MENTAL HEALTH

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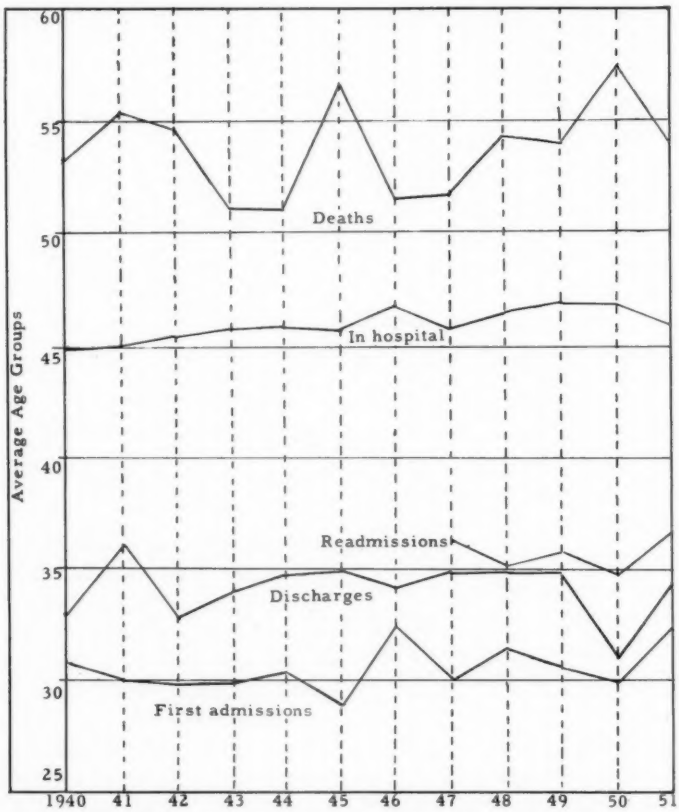
Schizophrenia As It Has Affected State Hospitals for the Past Twelve Years*

There are several diagnostic classifications of mental diseases, among which is schizophrenia (dementia praecox). It is one of the diseases with the larger frequency of occurrence. For a period of the last 40 years the rate of first admissions to the general population has remained approximately the same, about 9 to every 100,000 of general population. On the basis of the present population in Virginia, this means about 300 per year. According to past records, as the population increases this may be expected to increase. It will especially be affected by the age groups of 25 to 35 years of age.

Schizophrenia comprises about 13% of the total first admissions. The readmission rate is higher, being about 22% of the total readmissions.

A third, or 33%, of those resident in hospital have a diagnosis of schizophrenia. This means that many of these are long time patients and find their way to the back wards. For every 110 admissions of schizophrenia each year for the past 12 years, there have been 100 separations (discharges and deaths), which has built up an increase of 14.4% in hospital from 1940 through 1951.



Average age of patients with a diagnosis of Schizophrenia of first admissions, discharges, deaths and in hospital for years 1940 through 1951 and readmissions 1947 through 1951, for the four Virginia State Hospitals.

*Article by Edna M. Lantz, Statistician, Department of Mental Hygiene and Hospitals.

The average age of patients diagnosed as being schizophrenic shows, by their various statuses, the gradual build-up of this type of patient. The accompanying graph gives a picture of the average age groups with schizophrenia for a 12 year period (1940-1951) for first admissions, readmissions (only tabulated for 1947-1951), discharges, deaths and those remaining in hospital.

First admission ages averaged about 30 years of age, readmissions about 35 years of age. The discharge average age is less than that of readmissions, or about 34 years of age. The average stay in hospital of discharges has been around 2 years. Therefore, the discharges for the most part have had only a short hospitalization. The average age of deaths is approximately 54 years. This means a spread of an average of 20 years between admission and death. Of those remaining in hospital, the average age is approximately 46 years. Therefore, those remaining have been patients for an average of approximately 15 years.

In a special study of the number of years on books of those in hospital as of June 30, 1950, it was found that 37% of those admitted as first admissions, diagnosed as schizophrenia, had been patients 20 years or longer and of those admitted as readmissions, 12% had remained 20 years or longer. In a special study in 1948, 43% of the first admissions were still in hospital at the end of the year from their date of admission.

At the present time there are in round figures 3,500 schizophrenic patients in our four state hospitals, many of whom have been there for a long time and are resident in the so called "back wards". Is there an answer to this problem? Could early recognition of this disorder and early treatment be one of the answers? We believe it can. The medical profession, especially the general practitioner, could do much to aid in this by recognizing early symptoms and working out methods of treatment through mental hygiene clinics and private psychiatrists. The incidence of this mental disorder as admitted to state hospitals has remained fairly static over the past 40 years. Efforts should be made to reduce this ratio, because, when they are admitted to state hospitals there is a large possibility of long hospitalization.

Floral Eponym

TABERNAEMONTANA

TABERNAEMONTANUS, JACOB THEODOR, 1520-1590

This German physician and botanist was born at Bergzabern. He was an apothecary in Wissembough, but later he studied medicine and became the physician of the Elector and Bishop at Speyer. Later be became the physician to the Palsgrave at Zweibrűcken. He was also honorary citizen of Worms. He died in Heidelberg.

Tabernaemontana is a large genus of tropical shrubs and trees. T. coronaria is the well known Cape Jasmine.

XUM

PUBLIC HEALTH

MACK I. SHANHOLTZ, M.D.
State Health Commissioner of Virginia

Health Services for Preschool and School Age Child

Today, in Virginia, health services for children of preschool and school age are a combined effort of schools, physicians and local health departments. Every effort is made to get all children examined by their own physicians before entering school. Where this cannot be done, arrangements are made by the health department for examination in diagnostic clinics served by physicians selected by a panel appointed by the local medical society.

Such an approach is a far cry from the hurried medical inspection and mass methods of a past era to the modern health service program with its opportunities to observe defects early and make provision for their correction.

During the past year, 11,000 children in Virginia had preschool examinations at diagnostic clinics in rural areas. If the preschool population is estimated at 10% of the children in school, then 50,000 children entering school each year were left to be examined by doctors in their own offices. In two counties where health service diagnostic clinics are well established for the school age child and where school age groups were examined in clinics, corrections equalled the number of examinations.

In establishing health services for the preschool and school age child, the following principles are recognized:

1. Children should enter school with preschool examinations and corrections made.
2. The majority of medical and dental problems should be handled by private physicians and dentists without school help.
3. Teachers should be trained and encouraged to observe health habits and conditions of pupils.
4. Referral in health matters should be made to family physicians.
5. Where children cannot be seen by private physicians, diagnostic clinics should be available in the health departments.
6. Follow-up is a joint responsibility and arrangements should be made for assistance from public and private sources in circumstances where the families' economic condition warrants assistance.

The health services outlined above are in line with the definition of health as phrased by the World Health Organization, "That complete fitness of body, soundness of mind and wholesomeness of emotions, which make possible the highest quality of living and of service."

MONTHLY REPORT OF THE BUREAU OF COMMUNICABLE DISEASE CONTROL

	Dec. 1952	Dec. 1951	Jan.-Dec. 1952	Jan.-Dec. 1951
Brucellosis	4	5	47	81
Diarrhea & Dysentery	131	216	2,418	3,163
Diphtheria	14	27	163	194
Hepatitis	149	126	928	151
Measles	174	517	15,578	14,510
Meningitis (Meningococcic)	12	10	196	121
Poliomyelitis	19	16	686	267
Rocky Mt. Spotted Fever	1	3	78	63
Scarlet Fever	98	89	823	990
Tularemia	4	5	46	40
Typhoid & Paratyphoid	2	6	91	69
Rabies in Animals	44	29	476	223

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

President—
MRS. THOMAS N. HUNNICUTT, JR., Newport News
President-Elect—MRS. K. W. HOWARD, Portsmouth
Treasurer—MRS. WM. C. BARR, Richmond
Recording Secretary—MRS. LEE S. LIGGAN, Irvington
Corresponding Secretary—
MRS. F. A. CARMINES, Newport News
Publication Chairman—
MRS. ROBERT H. DETWILER, Arlington

Alexandria Auxiliary.

The old Country Inn on South Washington Street was the setting for the buffet luncheon for more than twenty members of the Alexandria Auxiliary December 16.

Most of the business meeting was devoted to our chief project, the collection and distribution of women's and children's shoes at a local shoe center, located above Bradshaw's Shoe Store. Every Tuesday from 3:30 to 4:30 women and children sent by the Community Chest agencies, local schools, American Red Cross and the Public Welfare Department are supplied with shoes for 50¢ a pair. The small charge covers the cost of supplies for polishing and repairing the shoes.

Mr. Milton Blumenthal, manager of Bradshaw's, was guest speaker. He stressed the need for such a center in this community and presented a plan for enlarging the project.

Mrs. Milton Stein is in charge of the venture this year.

Shoes are constantly needed, especially children's sizes 11½ to 7½. They may be sent to Bradshaw's at 510 King Street in Alexandria.

After the meeting, over 50 toys were wrapped, to be taken to the annual Alexandria Pediatric Clinic (red feather agency) Christmas party.

VALDA C. ANDERSON (MRS. R. H.)
Publicity Chairman

The list of Standing Committees of the Alexandria Auxiliary, as listed in the December *Monthly*, should include Mrs. Robert Anderson as chairman of Publicity and Today's Health, and Mrs. James Moriarty as chairman of Public Relations as well as chairman of the Girl Scout Committee.

Arlington Auxiliary.

The Woman's Auxiliary to the Arlington County Medical Society held their annual dinner dance at The Washington Golf and Country Club on November 29, 1952. It was most successful and was enjoyed by all with almost a 100% attendance.

The Auxiliary conducted their 3rd annual TB Handicraft Sale on December 4th, 5th, 6th and 8th at the Arlington Trust Company Bank. Articles made by patients in the Sanitoria throughout the State of Virginia and by the home-bound patients in Arlington were sold and a total of $401.71 was realized. The money goes directly back to the individuals who made the articles, through a careful cataloging system.

Members of this Auxiliary also volunteered their help with the sale of TB Christmas seals at various booths in the county.

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BOOK ANNOUNCEMENTS

Brain Surgeon. The Autobiography of WILLIAM SHARPE, M.D., New York City. The Viking Press, New York. 1952. xvi-271 pages. Cloth. Price $3.75.

Some people have the knack of being present when interesting and unusual things are going on. They usually have imagination and tell a good story. Such a person is Dr. William Sharpe. He was raised in the slums of Pittsburgh, Chicago, and Philadelphia, the son of an austere Presbyterian minister, and went to Harvard on a clandestine athletic scholarship in rowing. He landed in Cambridge with $100 in his pocket, three-fourths of which went for tuition. When he did not make good on the crew he was deprived of his meal ticket at the training table and had to make his own way. As he did not like waiting on the table he found jobs shifting scenery for theatrical companies. Later he drifted into tutoring in Hygiene I and by the time he got his A.B. he had saved up enough money to see him through medicine. Instead of waiting until the Harvard Medical School opened in the fall, he decided to go to Berlin and start his medical studies right away. He had only a reading knowledge of German, but he took a full course. As at Harvard, he chose outstanding professors; Waldeyer in anatomy, the younger Virchow in pathology, v. Bergman and Fritz König in surgery, Lassar in syphilis, du Bois-Reymond in physiology, Ernst v. Leyden in cardiac disease, P. Jacob in tuberculosis, and David Paul v. Hausemann in urology. In addition he joined the Saxonia Corps and acquired a taste for beer, a scar on his forehead and a "hausekeeper".

In the three weeks Christmas vacation, he went to Russia and added Pavloff and Metchnikoff to his string of notable acquaintances. In addition he added a course in Philosophy by Professor Paulsen. In this course a thesis was required by May and since he had not started to write his, he took the Easter holiday for a trip to Italy so as to expedite the writing of the thesis. On his way he stopped in Vienna to see Billroth and v. Eiselsberg. He finally ended his journey on the Mediterranean at Levato where he found a "pension" with an elderly mother, a widowed daughter (age 20) with a child of 4 years. He had a gabled room overlooking the sea with windows on three sides. He became acquainted with a group of young Jesuit priests who had been expelled by the French Government. These would have converted him to their belief had it not been for Annunciata, the widowed daughter, who forbade her house to the priests. (She was opposed to the Church on account of a distressing experience she had suffered at the age of 14.)

When August approached he tried to persuade Annunciata to marry him and come to America. His thesis, which was long overdue in Berlin, seems to have been forgotten entirely.

He entered the Harvard Medical School in order to continue his tutoring in Harvard College. His teachers were Thomas Dwight in anatomy, Porter and Cannon in physiology, Reginald Fitz in medicine, Maurice Richardson in surgery, and Richard Cabot in diagnosis. He lived in Divinity Hall and had as his roommate Augustus Loring Richards, later a noted divine.

In the summer following his second year in medicine, Dean Briggs asked him to tutor a group of 29 Chinese students who had been sent to this country by the Chinese Government. This turned out to be more important than it seemed at the time.

His life as a medical student was not without excitement. One evening in the spring he was waiting for the street car on Massachusetts Avenue at Boylston when he noticed a girl having difficulty in mailing a letter, while holding a package under her arm. He stepped forward and held open the letter slot, just as the bottom of the paper bag gave way and a bottle of beer fell to the pavement and broke. He suggested that they get some replacements at a nearby delicatessen store. He saw her home with the half dozen bottles and the next thing that he knew was awaking in the middle of a double bed with a girl asleep on either side of him. The girl, Betty, had already ruined the career of a young Massachusetts Hospital surgeon, but Sharpe determined to reform her. She swore off drinking, learned to type, got a job and continued to keep house for him.

When the time to look for an internship came, he went to New York to take examinations at the Roosevelt Hospital. Returning sooner than he had expected, he found a Back Bay play boy in his place. He threw the interloper down stairs to the second floor and then to the pavement. An ambulance took him to the City Hospital and Sharpe

retired to his room in the Divinity School. Fortunately, his victim recovered and left the hospital after several weeks.

Dr. Sharpe's surgical internship at Roosevelt Hospital did not begin until January first. He spent the intervening six months in Baltimore with Hugh Young and Harvey Cushing. After two years at Roosevelt and another year under Cushing and Welch, he was appointed professor of surgery at the Harvard Medical School in Shanghai. President Eliot accompanied him to China. The highlight of his China experience was his operation upon the son of the President of the Chinese Republic for a fractured skull, for which he was paid $50,000.

After one year in China, he returned to New York to begin his life work. He had paid for his academic and medical education, a year in Germany, Russia and Italy, two years at Roosevelt Hospital and one and a half years at Johns Hopkins and now, after one year of teaching in China, he had saved $100,000 —quite a feat. There seemed to be no doubt but that he would be a success. His story is fascinating especially when he tells of his work. When he tells of other things it is diverting.

His discussion of intercranial hemorrhage of the new born; its frequency, clinical aspects and treatment is extremely valuable. He points out that a large percentage of cerebral palsies are due to a hemorrhage that does not cause immediate death or even marked symptoms for several weeks. He advises that prophylactic treatment is of course better obstetrics, but that many cases can be cured by repeated lumbar punctures if they are started soon enough.

M.P.R.

Physical Diagnosis. By HARRY WALKER, M.D., F.A.C.P., Professor of Clinical Medicine, Medical College of Virginia, Richmond, Va. St. Louis, The C. V. Mosby Company. 1952. 461 pages with 126 Illustrations. Cloth. Price $8.00.

There has been a great need for a textbook on physical diagnosis devoid of hackneyed terminology and rambling voodooism. In this first edition the Professor of Clinical Medicine at the Medical College of Virginia has a text clearly describing a practical approach to history taking and the performance and recording of the physical examination. Besides the usual considerations in a textbook of this nature, included is a discussion of the inspection, palpation and anatomic consideration of the thorax as well as an excellent chapter on auscultation of the circulatory system. Chapters on the Abdomen, Physical Diagnosis of Female Pelvic Disease, Neurological Examination, Psychiatric Examination, Diseases of the Respiratory System and Diseases of the Circulatory System are excellent treatises contributed by individual members of the faculty of the Medical College of Virginia. The last chapter is especially comprehensive and includes an excellent discussion on abnormalities of the heart beat. The book is enhanced by numerous illustrations, charts and an adequate index. The reviewer considers this text to be an important addition to one's diagnostic armamentarium and recommends it highly to both the student and physician.

H.S.Z.

Outline of Fundamental Pharmacology. The Mechanics of the Interaction of Chemical and Living Things. By DAVID FIELDING MARSH, Professor and Head of the Department of Pharmacology, West Virginia University School of Medicine. Charles C. Thomas, Springfield, Ill. 1951. xxxi-219 pages. Price $6.00.

The purpose of this book is to explain the aims and purposes of the pharmacologist for the student of chemistry, pharmacy or medicine or for the research worker in any of these fields. This is a very worthwhile object, for only too frequently is the role of pharmacology either not known at all in university and scientific circles generally, or its sphere of activity and opportunities is poorly recognized.

In the introductory pages an excellent historical discussion is given on the development of pharmacology. Then follow chapters on Biological Variation, the Response of Populations to Drugs, Bioassay, Biocomparison, Drug Antagonism, Methods of Drug Localization. These are followed by sections on Absorption and Distribution, Fate and Mechanism of Action of Drugs. The final chapters are concerned with Chemical Construction and Biological Action and Applied Pharmacology.

To students of medicine and graduate physicians this book presents in very readable form an introduction to pharmacology which should be useful in reaching an understanding as to the problems to be considered in the basic study of drug action as well as in practical drug therapeutics.

H.B.H.

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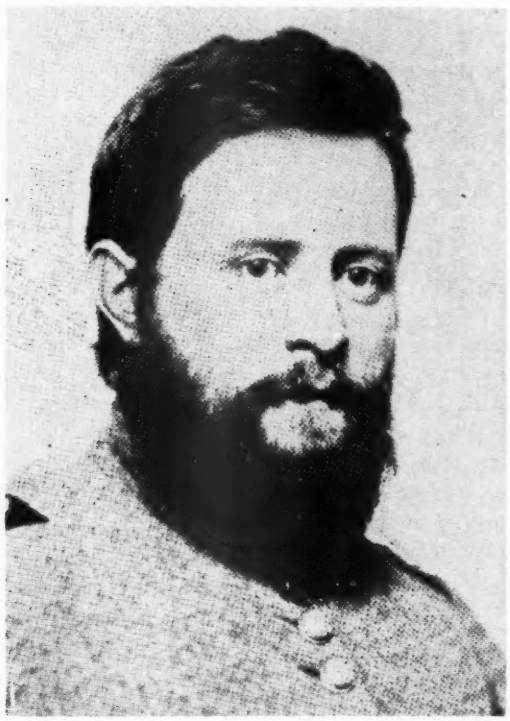
EDITORIAL

Samuel Brown Morrison, 1828-1901

STONEWALL JACKSON'S PHYSICIAN

THE lonely little house at Guinea Station (6* on the Medical Map) is where Stonewall Jackson died, May 10, 1863. For local color and background one should read "Life and Campaigns of Lieut. Gen. Thomas J. Jackson" by the Reverend R. L. Dabney, D.D., Major in the Confederate Army and Jackson's Chief of Staff for several months. He tells of this great soldier—one of the world's greatest—dying of pneumonia after receiving a grievous battle wound on May 2nd. As all the world knows he was mistaken for the enemy while reconnoitering in the dusk and was shot by his own troops. He lost a great deal of blood before he could be moved back from the front line. When he "reacted" about midnight Dr. Hunter McGuire amputated his



SAMUEL BROWN MORRISON, M.D.

left arm and removed a bullet from his right hand under chloroform analgesia. The next day he was transported by ambulance to the Chandler farm, a distance of 25 miles, over country roads. In spite of these hardships his condition was considered favorable. The next day however, there was a turn for the worse and by the fifth day it was quite evident that he had pneumonia.

Dr. Douglas Freeman says that General Jackson "lived by the New Testament and fought by the Old" and it is interesting to read what Dr. Dabney has to say about the

*VIRGINIA MEDICAL MONTHLY **79**:112, 1952. The house and grounds are now a part of Fredericksburg and Spotsylvania National Military Park and are open to the public.

routine within the little house. The General had his servant, Jim, bathe the wounds with spring water frequently as it gave him comfort. Dr. McGuire remained at his bedside night and day and Mr. Lacy, his chaplain, held prayers each morning at ten o'clock after which the conversation turned to religion and the Bible. When the *centers* of Christianity after the *Crucifixion* came under discussion, General Jackson said that *headquarters* was a better term and wanted to know if anyone knew where *Iconium* was. He asked Lieutenant Smith to get out of his trunk a map which showed its location. At another time he stated that Joshua's report of the battle with the Amalekites was a model battle report for clearness, brevity, fairness, and modesty and that it rightly traces the victory to its real source, the blessing of God. At all times he was serene and optimistic. Such was the impression of a Doctor of Divinity. A modern military surgeon would probably be impressed by what this great general lacked in the way of treatment that any G. I. expects, and gets, today. There were no blood transfusions, no asepsis, no antibiotics, no air evacuation to a well equipped hospital, and no trained nurses.

On Thursday, the fifth post-operative day, a request was sent to headquarters for General Jackson's family physician, Dr. S. B. Morrison who was at the time chief surgeon of General Early's Division. He arrived at 2 P.M. and by that time the patient had been cupped and blistered, and mercury with antimony and opium had been administered. There was nothing left in the way of active treatment for the family physician to do. This was also the opinion of Dr. David H. Tucker, an expert on pulmonary diseases, who came from Richmond in consultation. Dr. Morrison, however, remained in attendance until General Jackson died the following Sunday.

Samuel Brown Morrison was born at "Bellevue", the family home near Brownsburg in Rockbridge County, Sept. 13, 1828. His father, the Reverend James Morrison, D.D., a native of North Carolina and a graduate of the University of that state, had settled in Rockbridge in 1818 as pastor of New Providence Church and for 38 years was a conspicuous figure in the religious and educational life of that section. His mother was Frances Brown, daughter of the Reverend Samuel Brown and Mary Moore Brown, whose tragic history is told in the "Captives of Abb's Valley."

After attending a classical school at his home and completing his academic training at Washington College at Lexington, he began the study of medicine. As was customary at that time, several years were spent as apprentice to his uncle, Dr. Luther Brown of Rogersville, Tennessee, and after two years at the University of Virginia he was graduated from the Department of Medicine in June, 1853. The following year was spent in postgraduate work in Philadelphia and at Bellevue Hospital in New York, the latter association being terminated by his father's illness and his determination to begin practice at home.

Soon after becoming established, Dr. Morrison married Mary Gold, daughter of Dr. William McDowell Gold, a prominent citizen and successful physician of Brownsburg. His reputation and practice grew rapidly and among his friends and patients was Major T. J. Jackson, later "Stonewall", who in 1857 had married his cousin, Anna Morrison.

Though sentiment in the Valley was largely against secession, nevertheless when Virginia left the Union no section rallied to her defense with greater loyalty. In April, 1861, Dr. Morrison entered the Confederate Service as an officer of cavalry. Four months later he became regimental surgeon to the 58th Virginia Infantry and the following year Chief Surgeon of Ewell's Division. In this capacity it fell to his lot

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to amputate the leg of General Ewell, who was desperately wounded at the Battle of Groveton. After Sharpsburg the Division was commanded by General Early and Dr. Morrison remained Chief Surgeon until 1864, when he was made Medical Inspector, Second Corps A.N.V., a position he held until the close of the war.

Dr. Morrison was one of several physicians who attended General Jackson during his fatal illness. The General's left arm having been amputated Saturday night, on the following Wednesday night he showed signs of complications. Dabney, in his *Life of Jackson,* writes: "The chaplain was now (Thursday) dispatched to the Army to bring the General's family physician, Dr. Morrison, now Chief Surgeon of Early's Division. About two o'clock P.M., Dr. Morrison arrived. When he spoke to him the General looked up and said affectionately, 'That's an old familiar face.' His condition was now thoroughly examined and found critical." Dr. Hunter McGuire, in his account of the wounding and death of Jackson, states: "At my request, Dr. Morrison came today (Thursday) and remained with him."

"Bellevue" was occupied in 1864 by troops of the Federal General Hunter, a detachment camping for the night on the lawn. On departing, they left the body of a Confederate soldier hanging from a tree to be buried by Mrs. Morrison's servants in her garden. The house was spared, however, and at the close of the war Dr. Morrison returned and was soon busily engaged in practice.

Two younger brothers had also been in the service. Henry Rutherford, a Lieutenant of Infantry, lost his life at Spotsylvania Court House, while Robert Hall, after serving through the war as a private in the First Virginia Cavalry, studied medicine and practiced in Lexington.

In 1869, the year of the adoption of the new State Constitution, Colonel McLaughlin, former Commander of the Rockbridge Artillery, and Dr. Morrison were drafted by the Conservatives as candidates for the House of Delegates. They were elected and attended one session of the Legislature, but both resigned before their term of two years expired.

In 1873, Dr. Morrison moved to Rockbridge Baths and lived there until his death in 1901. In addition to serving the community he was in frequent demand as a consultant and his reputation as a surgeon brought him patients from surrounding counties and occasionally from a distance. Among these was Major Dabney, Jackson's Chief of Staff, on whom he operated for stone in the bladder. His surgery covered a wide range and, as there were no hospitals accessible, his operations were usually done in the home where he was assisted by his former pupil, Dr. E. S. McKean, or his son, Dr. H. R. Morrison. None of his work was published, but it is stated by his associates that he removed successfully several very large ovarian tumors and often operated for bladder calculus in cases that could not be relieved by the lithotrite, an instrument he seems to have used often. By frequent visits to professional friends in New York, he kept in touch with the newer procedures in the various fields of medicine. He operated for harelip, using steel pins, and his results were excellent.

Dr. Morrison was a member of the Medical Society of Virginia, but probably did not attend often. He was twice elected to the office of First Vice-President.

What Is Adequate Medical Care?

THE perennial struggle for the possession of the medical profession is off to a new start. In this connection it should always be borne in mind that benefit of medical care is primal and fundamental. All else is secondary. How the medical service

is distributed and how it is paid for may be important, but it is not fundamental. It is also agreed that the U.S.A. has at present the best medical care in the world notwithstanding its size and its diversity in population and local conditions. It should also be kept in mind that history demonstrates, although the demonstration has been obscured somewhat by politics and self-interest, that governmental management always causes a deterioration in medical care. Germany is a perfect example. In the last century it led the world in every phase of medicine but, when Bismarck began to experiment with social insurance, German medicine began to degenerate until now it is looked down upon by all the world.

Much has been made of the great increase in the number of accidental deaths. Accidental deaths now rank well within the ten highest death rates. They are preventable deaths and therefore the Social Security Administrator blames the medical profession. Serious and fatal accidents may occur in the home, in the factory, or on the road. Industrial accidents have been reduced by engineering improvements and by campaigns of education. Less has been done to decrease accidents in the home, and road accidents are on the increase. They can be prevented. If automobiles were abolished from the highways, deaths on the roads would become as rare as deaths from smallpox, and if no automobils were made that could run faster than 35 miles per hour, a death from an automobile accident would become as infrequent as a death from typhoid fever. Such means of prevention are impractical, but compulsory health insurance is certainly not the answer.

It has been said that 30 per cent of the nation lacks adequate public health service. This too has been blamed on the A.M.A., a characteristic procedure when the fault is on the other side. The facts are that the American Medical Association and its component societies have, from the very beginning, worked and fought for improved public health service. As a matter of fact the establishment of public health service and the improvement of medical education were the two planks upon which the Association was founded in 1847, and it has not deviated from its original principles since. The A.M.A. can not truthfully be blamed for this condition. What lack there exists is the fault of the taxpayers; they can have all the public health service that they care to pay for. No compulsory health insurance is needed in this area.

We come now to the part in which the voter is most interested personally, and it behooves us to be careful about our definitions. In regard to acute and self-limited diseases there is little room for disagreement as to what constitutes adequate medical care, but with chronic diseases, old age, and especially nervous and mental conditions, the point of view makes a vast difference. Take tuberculosis as an example. To a public health officer the care might seem adequate when all contacts are protected against the disease. A practicing physician would consider the treatment adequate when all signs of the disease had been eliminated. The social worker would add a program of rehabilitation. The patient might want in addition reimbursement for time lost. All these are relatively easy to determine and fall within limits that can be met. When, however, we come to neuroses, they are boundless and limitless. Before the voter determines to assume any part of the cost of medical care, he should have it clearly understood what is meant by adequate medical care and who is to do the deciding. Fuzzy thinking on this point has been the downfall of many prepayment plans.

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SOCIETIES

Virginia State Board Medical Examiners.

Following is a list of those licensed by the Board at the session held in Richmond December 10-13, 1952:

LICENSED BY RECIPROCITY OR ENDORSEMENT OF CREDENTIALS

Dr. Katherine Patricia McGinnis Andrews, Charlottesville.
Dr. William Francis Barry, Jr., Richmond
Dr. Harry Bartton Beatty, Arlington
Dr. William Bradford Blake, Jr., Charlottesville
Dr. Ellen Frances Birchall, Charlottesville
Dr. Steve Hansford Bowen, Norton
Dr. Theodore R. Coots Brown, Richmond
Dr. Billy Brashear, Grundy
Dr. Walter Joseph Brennan, Jr., Colonial Heights
Dr. Walter Edward Bundy, Jr., Richmond
Dr. Richard Harvey Butler, Charles City
Dr. Lachlan Leigh Campbell, Warwick
Dr. Frank Andrew Carroll, Jr., Alexandria
Dr. Norman V. Cooley, Jr., Falls Church
Dr. Alice Elizabeth Drumm, Norfolk
Dr. James Lloyd Elliott, Norfolk
Dr. Harlan Franklin Fulmer, Richmond
Dr. Ferne Marie Georges, Martinsville
Dr. Henry Wayne Glotfelty, Richmond
Dr. William Eugene Greene, Jr., Hampton
Dr. Alexander Halperin, Alexandria
Dr. John Louis Harris, Jr., Roanoke
Dr. Meredith B. Hesdorffer, Martinsville
Dr. Edward Reginald Hipp, Jr., Charlottesville
Dr. August Christ Hofmeister, Jr., Blackburg
Dr. Charles Anthony Hufnagel, Washington, D. C.
Dr. James Brooke Hutt, Jr., Warrenton
Dr. Delmas Bernard Jones, Norton
Dr. James Leo Kelley, Jr., Chevy Chase, Maryland
Dr. Joseph Andrew Kiesel, Arlington
Dr. Hoyt Kirkpatrick, Jr., Alexandria
Dr. William Thurston Lady, Arlington
Dr. Herbert Gaines Langford, Richmond
Dr. Joseph Anthony Ledogar, Norton
Dr. Lillian Chambers Lindemann, Richmond
Dr. Joseph Charles MacKnight, Richmond
Dr. Robert Kent Maddock, Norfolk
Dr. Richard Joseph Mulvaney, Falls Church
Dr. Robert Bernard Neu, Falls Church
Dr. Desmond S. O'Doherty, Arlington
Dr. Lawrence Milton Pack, Arlington
Dr. Carroll Alden Peabody, Petersburg
Dr. Henry Lincoln Peckham, Jr., Washington, D. C.
Dr. John Christian Ransmeier, Alexandria
Dr. Rudolph Alton Reid, Suffolk
Dr. Luther Dabney Robinson, Richmond
Dr. Ralph W. Royer, Luray
Dr. William John Schewe, Arlington
Dr. Ronald Napier Shelley, Norton
Dr. Homer Alden Sieber, Durham, N. C.
Dr. Thomas Woodruff Stewart, Lynchburg
Dr. Ben Storer, Abingdon
Dr. Clementine Spurzem Tierney, Arlington
Dr. John Paul Urban, Norton
Dr. Fred Louis Vidal, Charlottesville
Dr. Ruth Reade McDonald Vingiello, Blacksburg
Dr. William Hugh Latimer, Westbrook, Jr., Franklin
Dr. John Mark Williams, Emporia
Dr. Hugh Hiter Willis, Jr., Chatham
Dr. Robert Terrell Wingfield, Charlottesville
Dr. Clinton Hannix Wooding, Jr., Norfolk
Dr. David Michael Wayne, Radford

Homeopaths:
Dr. David S. Stayer, Roanoke

LICENSED BY EXAMINATION:

Dr. Rolf Gunther Baginsky, Martinsville
Dr. Spencer Pippen Bass, Jr., Tarboro, N. C.
Dr. Elam Withrow Bosworth, II, Newport News
Dr. Charles Graham H. Bourhill, Catawba Sanatorium
Dr. John Edward Bryant, Jr., Miami, Florida
Dr. James Mitchell Fite, Minneapolis, Minn.
Dr. John Simon Fitzsimons, Richmond
Dr. Powell Graham Fox, Jr., San Antonio, Texas
Dr. Hugh Ross Fraser, Newport News
Dr. Ross Hillyard Hamilton, Stonega
Dr. Harry Hubert Howren, Jr., Alexandria
Dr. John McMillan Mennell, Fishersville
Dr. Nelson Glasgow Richards, New York, N. Y.
Dr. Juan Jesus Santos, Richmond
Dr. Torben Seear, Buffalo, New York
Dr. Carl Ellroy Stark, Reading, Penna.
Dr. David Tyler, Norfolk
Dr. Sol Morris Unger, Richmond
Dr. Robert Basye Webb, Jr., Virginia Beach
Dr. William Harvey Whitmore, Jr., Richmond
Dr. George Edward Wire, Jr., Portsmouth

Three chiropractors and two chiropodists were also licensed by examination.

The Tri-County Medical Society

Held its regular monthly meeting in Windsor on November 25th, with Dr. T. A. Morgan, Franklin, presiding. Thirty-two members and six guests were present. Following dinner and a brief business session, Dr. Walter B. Martin of Norfolk addressed the society on "Recent Governmental Trends in Medicine", and cited his observations on the governmental medical program in England. He mentioned the several ways in which our own government is already providing medical service for certain special groups,

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and the constant efforts which have been made in Washington to expand the number of people receiving medical care at the tax-payers' expense.

The next meeting was scheduled to be in Sunbury, N. C. on January 27, 1953.

W. N. EDDY, *Secretary*

The Arlington County Medical Society,

At its regular meeting in November, unanimously adopted the following resolutions:

"That the Arlington County Medical Society would like to go on record as opposing the financial backing and, in some instances, the setting up of medical centers by big business and industry, and especially their claim that group practice is far superior to individual or partnership practice," and

"That members of the Society, in their relations with the press and the public in general, submit through the Board of Censors for clearance, all written or oral statements concerning medical subjects."

The following were elected as officers of Arlington Society for the year 1953: President, Dr. Lloyd B. Burk; vice-president, Dr. Donald C. McCollum; secretary, Dr. Robert L. Norment; treasurer, Dr. A. R. MacPherson. All are of Arlington.

Medical Society of Northern Virginia.

The meeting of this Society in Winchester, December 9, was well attended and there were a number of interesting case reports. The guest speaker was Dr. H. B. Mulholland of the University of Virginia who spoke on the current concepts of liver disease.

The following were elected as officers for the following year: President, Dr. Elizabeth Sherman, Front Royal; Vice-president, Dr. E. L. Grubbs, Front Royal; Secretary-Treasurer, Dr. Wm. C. Humphries, Woodstock; and chairman of the Censor Committee, Dr. Edmund Horgan, Winchester. Delegates and alternates to the State meeting were also named.

The Lynchburg Academy of Medicine

Held a business meeting at the Lynchburg General Hospital on December 8, at which time Dr. Clarence E. Keefer succeeded to the presidency, and the following officers were elected, as also delegates and alternates to the meeting of the State Society: Dr. John R. Saunders president-elect and Dr. George B. Craddock as vice-president. Dr. F. R. Whitehouse and Dr. J. E. Warren were elected trustees for a term of three years, and Dr. J. W. Davis for two years.

Dr. S. R. Arnold was appointed to represent the Academy at the Eighth National Conference on Rural Health to be held in Roanoke on February 26-28, and Dr. Ashby Coleman as alternate.

Dr. J. H. Allan of the University of Virginia was the guest speaker before the Academy at its meeting on January 12, his subject being "Cervico-brachial Pain". The meeting was held at the Lynchburg General Hospital.

Tazewell County Medical Society.

At the last meeting of this Society, the following were elected as officers for 1953: President, Dr. A. M. Tiernan, Jewell Ridge; vice-president, Dr. W. R. Strader, Richlands; and secretary-treasurer, Dr. Mary E. Johnston, Tazewell. Delegate and alternate to the State Society meeting were also named at this time.

Fredericksburg Medical Society.

At the December meeting of the Society, the officers were elected for 1953 as follows: President, Dr. H. D. Crow; vice-president, Dr. L. A. Busch; and secretary, Dr. John B. Rose. All are of Fredericksburg.

The Danville-Pittsylvania Academy of Medicine

Had its regular monthly meeting on December 12. After a short social get together and dinner, Dr. W. C. Winn, Associate Professor of Obstetrics and Gynecology at the Medical College of Virginia, gave an interesting talk on "Toxemias of Pregnancy". The new officers are Dr. John R. Eggleston, president, and Dr. Walter C. Fitzgerald, secretary.

Richmond Academy of Medicine.

At the stated meeting on January 13, papers were presented by Dr. Harry J. Warthen, Jr., on "Amputations in Diabetic Gangrene" and by Dr. David C. Wilson of University of Virginia on "The Treatment of Depression".

Dr. Guy W. Horsley, retiring president, gave his annual report followed by induction of the new officers. Committee appointments were also announced.

Albemarle County Medical Society.

On January 8, at the Hotel Albemarle, the Society held a supper meeting, following which the film was shown on "Medical Effects of Atomic Bomb."

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NEWS

Local Committee for Roanoke Meeting, The Medical Society of Virginia.

At a recent meeting of the Arrangements Committee of the Roanoke Academy of Medicine, the following sub-chairmen were named to serve with Dr. David S. Garner as general chairman:

SCIENTIFIC EXHIBITS—Dr. Allen Barker
TECHNICAL EXHIBITS—Dr. Robert Hutchinson
ENTERTAINMENT —— Dr. Harry B. Stone, Jr.
HOTELS AND HALLS—Dr. Houston L. Bell
GOLF —— Dr. G. C. Gooch
PUBLICITY AND PRESS—Dr. Alexander McCausland
AUXILIARY —— Mrs. Philip Trout

Diamond Anniversary of Medical Progress.

The various states are designating their seventy-five year old guests of honor to the First Western Hemisphere Conference of the World Medical Association, to be held in Richmond, April 23 to 25. This will be in observance of the lengthening of life and the constant improvement of human health.

At the Richmond conference, guests will be greeted by Dr. Louis H. Bauer, president of the American Medical Association, and by leaders of Latin American medical societies. Besides scientific sessions, there will be opportunities for visiting historic sites in Virginia, including the 18th century Williamsburg restoration. Expenses of the conference, and of guests and delegates, are covered through a grant by A. H. Robins Co., Inc., ethical pharmaceutical house founded in Richmond 75 years ago this year.

The Tri-State Medical Association of the Carolinas and Virginia

Is to hold its annual meeting in Durham, March the 2nd and 3rd, under the presidency of Dr. J. Asa Shield of Richmond. An interesting program is being arranged and a large attendance is expected. Dr. R. B. Davis of Greensboro is secretary.

The Richmond Academy of General Practice

Met at the Academy of Medicine Building on January 20, at which time they installed new officers, conducted a short business session and heard a paper by Dr. William E. Apperson of the State Health Department on "The General Practitioner and Tuberculosis". Dr. R. G. McAllister became president, succeeding Dr. William A. Young, Dr. W. Linwood Ball was installed as president-elect; Dr. Theodore Kohn became vice-president; Dr. F. E. Oglesby took the office as secretary; and Dr. Harold I. Nemuth was inducted into office as treasurer. Two new directors were also installed—Dr. Richard Crossen and Dr. H. Mason Wingfield.

To Head Virginia Hospital Service Association.

Dr. Richard J. Ackart, director of the University of Virginia Hospital, was on January 9 elected executive director of the Virginia Hospital Service Association (Blue Cross), succeeding Mr. M. Haskins Coleman who resigned after holding the position since 1935. Dr. Ackart will enter upon his new duties on February 1.

The Richmond Eye, Ear, Nose and Throat Society,

At a recent meeting elected Dr. J. Warren Montague as president, and reelected Dr. Charles N. Romaine as secretary-treasurer. The Society meets at the Commonwealth Club, Richmond, on the first Tuesday in January, March, May and October.

International College of Surgeons.

A regional meeting of the Pennsylvania and surrounding states surgical divisions of the United States Section of the International College of Surgeons will be held in Philadelphia with headquarters at The Bellevue-Stratford on February 13 and 14. Dr. W. Wayne Babcock is honorary chairman, Dr. Moses Behrend is chairman, and Dr. Albert Behrend is co-chairman of the meeting.

Qualifying examinations for Fellowship in the United States Section of the International College of Surgeons will be held during 1953 on May 4 and 5, August 10 and 11, and November 2 and 3. The examinations will be given at the Cook County Graduate School of Medicine, and the Cook County Hospital. Applicants are requested to address communications as follows: Harry A. Oberhelman, M.D., Secretary, Qualification and Examination Council, 1516 Lake Shore Drive, Chicago 10, Illinois.

Kiwanians' $82,000 Will Finance Spastic Research at Children's Memorial, Chicago.

Basic problems of the deeper brain areas in cerebral palsy will be studied with new techniques over

the next five years at Children's Memorial Hospital in a project financed by the Illinois-Eastern Iowa District of Kiwanis International. The Kiwanians, who had been asked by their leaders to contribute $75,000 for the work, responded with pledges totalling $82,000, and 15 of the 174 clubs are yet to report.

The research team which will carry out the work—all of whom are contributing their services—consists of prominent specialists.

Kiwanis has set up a special Spastic Paralysis Research Foundation to administer the research funds. It is believed to be the first time that a coordinated, intensive and long-range research effort has been made to throw light on the more fundamental problems of cerebral palsy.

Postgraduate Medical Course at Chapel Hill, North Carolina.

The faculty of the School of Medicine of the University of North Carolina School of Medicine announces the first postgraduate medical course to be given at the new North Carolina Memorial Hospital in Chapel Hill. This will be a 3 day intensive program on Diagnostic and Therapeutic Measures Applicable to Office Practice, March 4, 5, and 6, 1953.

Interested physicians may secure detailed information regarding this course by writing Doctor W. P. Richardson, Assistant Dean for Continuation Education, U. N. C. School of Medicine, Chapel Hill, N. C.

American Academy of Obstetrics and Gynecology.

More than 1100 Fellows and non-members attended the First Annual Clinical session of the Academy in Chicago December 15-17, 1952. Dr. Robert A. Kimbrough, Jr., Philadelphia, was installed as the third president of the Academy. Dr. Bayard Carter, Durham, N. C., was chosen president-elect to take office next year.

Dr. C. Paul Hodgkinson, Detroit, was elected secretary.

The Academy's Second Clinical Session will be held in the Netherland Plaza Hotel, Cincinnati, December 14-16, 1953.

Texts of formal papers presented at the first session will be printed in the Academy's new journal, "Obstetrics and Gynecology", beginning with the first issue in January 1953. Published monthly, the journal will be edited by Ralph A. Reis, Chicago.

Ciba Gets New Chemical Research Director.

Dr. Emil Schlittler, international authority on the chemistry of alkaloids, has been appointed Director of Chemical Research for Ciba Pharmaceutical Products, Inc. He succeeds Dr. Caesar Scholz, who came to Ciba twelve years ago to set up hormone manufacturing and is returning to Ciba Limited, Basle.

The Physician's Bulletin,

House publication of Eli Lilly and Company, has a new format. Starting in January, 1953, the new "PB" will be 5 x 7¾ "pocket-book" size, and is increased from twenty-four to thirty-two pages. Formerly published six times a year, the new "PB" will be issued ten times a year, appearing every month except August and December.

Pan-Pacific Surgical Association.

The executive office of the Association announces that the Sixth Pan-Pacific Surgical Congress will be held in Honolulu in November 1954. Included in the scientific program will be sessions in all divisions of surgery and related fields, with papers presented by topflight surgeons from the Pacific Area countries.

For further information concerning the Sixth Congress or membership in the Association, doctors may write to the Pan-Pacific Surgical Association, Suite 7, Young Building, Honolulu, Hawaii.

OBITUARIES

Dr. Claude C. Coleman,

Renowned neurosurgeon of Richmond, died January 9th after a long illness. He was a pioneer in neurosurgical surgery in the United States and had received many honors in his special field. He was seventy-three years of age and a graduate from the Medical College of Virginia in 1903. After graduate study at Polyclinic Hospital in New York City, he practiced general surgery in Richmond and began specialization in neurosurgery about 1915 when the science was in its infancy. During World War I, he served as chief of the school of brain surgery at

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Fort Oglethorpe and in World War II he was civilian consultant in neurological surgery to the surgeon-general. He became professor of neurological surgery at the Medical College of Virginia in 1924 and chief of that department. His positions and honors were many. He was associated with the Medical College of Virginia for forty-two years, resigning his position in June 1951. His wife and four children survive him.

Dr. Lawrence Thomas Royster,

Founder and for some years head of the department of pediatrics at the University of Virginia, died at his home there on January 7, after a long illness. He was a native of Norfolk and was prominent in community life and medical affairs there until he went to the University in 1923. He was seventy-nine years of age and a graduate of the University of Virginia in 1897. He was one of the original members of the State Board of Health which position he retained to the time of his death. He was a member of many pediatric organizations in which he took an active part. His wife died many years ago.

Dr. John Otto Boyd, Sr.

Dr. John Otto Boyd, Sr. passed away January 1, 1953. He graduated in Medicine from the University College of Medicine, Richmond, Virginia, in 1905. He began his practice in Roanoke, Virginia, in Obstetrics and Gynecology in 1906. He was past president of the Roanoke Academy of Medicine and the Roanoke Kiwanis Club. He was a member of the South Atlantic Society of Obstetrics and Gynecology, The Medical Society of Virginia and the American Medical Association. He was closely associated with the Memorial and Crippled Children's Hospital, of Roanoke, since its inception and played an important part in its organization.

He is survived by his wife, two sons and two daughters.

The Roanoke Academy of Medicine and the community have suffered a great loss of a fine physician and surgeon and Christian gentleman by the death of this distinguished member.

THEREFORE, BE IT RESOLVED that a copy of this be sent to the family, spread on the minutes of this meeting of the society, and a copy forwarded to the Virginia Medical Monthly.

W. W. S. BUTLER
MORTIMER WILLIAMS
W. L. POWELL, *Chairman*

Dr. Walter P. Hammer,

Formerly of Arlington but later of Falls Church, died July 14. He was sixty-two years of age and a graduate of the Chicago College of Medicine and Surgery in 1916. He had been a member of The Medical Society of Virginia since 1937.

Dr. S. E. Massey,

Who formerly practiced in southwest Virginia and West Virginia, died August 31. He was sixty-eight years of age and graduated from the Medical College of Virginia in 1908. He retired in 1938 and had since been living in New Smyrna Beach, Florida. He was a member of The Medical Society of Virginia. His wife survives him.

Dr. H. Graham Stoneham,

Waverly, died January 12 in a Richmond hospital. He was sixty-two years of age and a graduate of the University of Maryland Medical School in 1913. He served in the Medical Corps during World War I. He was a thirty-second degree Mason and active in medical affairs in his community. He is survived by three sons.

Dr. William Alexander Murphy,

Staunton, was found dead by the side of the road near there early December 21, due to an accident. He was seventy-one years of age and a graduate of the University of Virginia in 1910. He had practiced in Augusta County since 1928. He served in World War I with the rank of major in the Medical Corps. He was formerly a member of The Medical Society of Virginia. A sister survives him.

Dr. Frank L. Hughes,

Ashland, died suddenly January the 7th. He was fifty-seven years of age, a graduate in medicine from Columbia University in 1919, and had been connected with the Veterans Administration. He was a bachelor.

Dr. C. Earle Johnson,

For several years superintendent of the DeJarnette Sanatorium near Staunton, died January 9. He left Virginia several years ago to take charge of a sanatorium in Meridian, Mississippi, where he had since made his home. He was forty-six years of age and a graduate of the University of Colorado in 1931. His wife and a daughter survive him.

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